

MARINE REVIEW.

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No. 11.

Iron Ore Shipments—Lake Freights.

Reports from all upper lake shipping ports to the ore dealers' association of Cleveland show a total ore movement to Sept. 1 of 7,712,158 gross tons, against 7,104,092 tons on the same date a year ago, or a gain of 608,066 tons. Shipments during August were the heaviest in the history of the business, close to the two-and-a-half million mark. On the other hand soft coal shipments to all Lake Superior ports (correct figures regarding Lake Michigan coal trade are not available) to Sept. 1 aggregated only 1,015,627 net tons, a decrease of more than 700,000 tons as compared with the same date a year ago. A similar decrease would probably be shown in Lake Michigan shipments if figures were available. During the full season of 1896 there was shipped to Lake Superior 2,626,130 tons of soft coal, so that in order to reach the total of last season it would be necessary to move to Lake Superior alone 1,600,000 tons of coal in the next two months. It is claimed by coal shippers that the facilities afforded in car dumping machines and the improvement in coal handling machinery at upper lake ports will permit of this large volume of coal being moved after the strike is settled, but it would seem that car shortages and the demand for coal in lines other than the lake trade must certainly interfere with the shipments being made equal to those of a year ago. Some vessel owners are expecting high freights on coal on account of this shortage, but others say they are satisfied that the full volume of coal can not be moved and freights will be restricted accordingly. The ore companies are all planning to close up shipments as early as possible in November, but as additional sales are being made, and as it is certain that the season's shipments will exceed the 10,000,000-ton mark, vessel owners look to the ore dealers to contribute their share in keeping up a strong freight market until the close of the season. Within the past few days the freight market has been a little weak on the basis of a 70-cent ore rate from the head of Lake Superior, but northwest grain has been late in getting to market, and delay in settling the coal strike has also acted against higher freights.

Negotiations of the Carnegie-Rockefeller-Oliver combination pertaining to iron ore properties on the Gogebic range have caused considerable speculation in iron ore circles during the week. It is known that the Carnegie-Oliver interest has an option on the big Norrie mine and is also figuring with Mr. Rockefeller regarding a lease of the Tilden, but the negotiations have thus far been well covered up. The outright purchase of a control of the Norrie would probably involve something like \$2,000,000. The combination will very probably arrange through lease or purchase of mines for about a full supply of its standard Bessemer ores before another year's business is begun, but how this will be done can not be told as yet. Mr. Rockefeller's ships and other transportation interests will undoubtedly be in the deal.

Grain Shortage Case.

A dispatch from Duluth says: "Vesselmen have some redress for short grain cargoes, as far as the courts of this state are concerned. This was decided today in the Frontenac case. This matter has been in the courts ever since 1890. The judge decreed that the vessel can recover all expense for shortage from the elevator where the grain was received into the boat. The Frontenac was chartered in 1890 to take 81,000 bushels of wheat to Buffalo from Duluth. The load was taken on at the Northern elevator, and at Buffalo it was found to be 1,052 bushels short. The consignee recovered from the vessel's owners in the United States court, and they sought recourse from the elevator company. Judge Moore today announced to Rearle & Spencer, attorneys for the steamer, that he would give a judgment against the elevator company for shortage."

On one of the excursions connected with the international congress of naval architects in England the conversation among a party of Americans turned to a discussion of the great age of some of the ship building establishments of the country. A civil engineer in the company, viewing the surroundings from the light of his own profession, remarked that there was nothing more to do—roads were all made, bridges built and everything put down to last forever. The same would apply to the ship building concerns. The business of Messrs. Scott & Co. of Greenock, for instance, has been handed down to the sixth generation in direct line from father to son. The business of this firm, who began to build ships in 1710 and marine engines in 1825, is now in the hands of John Scott and his brother, Robert Sinclair Scott, these gentlemen representing the fifth generation in direct descent from the founder of the firm, while Mr. John Scott's sons, who are now engaged in the business, constitute the sixth generation.

Some talk of a strike of lake engineers has been heard during the past two or three weeks, but it is probably not supported by any official action on the part of the Marine Engineers' Beneficial Association. Dissatisfaction exists on account of the action of some owners in forcing wages below the scale adopted by the Lake Carriers' Association. It is probable that if a strike should be declared to cover cases where minimum card rates have prevailed, and where even these have been cut, the owners who have gone to extremes in this regard would not have much sympathy from vessel men generally.

A steel floating dry dock for the Spanish government was launched Aug. 28 at Wallsend, Germany. It is to be stationed at Havana, and is large enough to accommodate the largest of Spain's battleships.

Ship Yard Matters.

As far as can be learned the large shipping interests represented by the Bessemer Steamship Co. and Pickands, Mather & Co. have as yet taken no steps toward the construction of new vessels during the coming winter. Interviews with representatives of both of these concerns would indicate that they are of the opinion that with a great increase in capacity due to deep water extensive building operations are not required at this time. Their policy, however, is to say nothing of contracts until they are closed, and there is, of course, plenty of time as yet for the placing of orders with ship builders. The Globe Iron Works Co. had arranged for the construction, on their own account, of a very large steel tow barge—larger than anything as yet built—when they closed a contract, a few days ago, with the Mack interests and W. H. Becker of Cleveland for a barge that is to be practically a duplicate of the Thomas, built a year ago for the Bessemer company. The Marine Review announced, in a circular published a few days ago, that the big cargo steamer—450 by 50 by 28 feet—for which a keel is to be laid shortly at the Lorain yard of the Cleveland Ship Building Co., was for Mr. A. B. Wolvin of Duluth. Mr. James Wallace, manager of the Cleveland Ship Building Co., asks that this statement be denied, as he says the vessel is to be built by the ship building company on their own account.

F. W. Wheeler & Co. of West Bay City, have laid the keel for the large steel tug—156 feet long—which they are to build for Brown & Co. of Pittsburg. The West Bay City company has also launched the tug Robert W. Wilmot which they are building for New Orleans parties. The construction of tugs of this kind has made a reputation for Wheeler & Co. in New Orleans and other places distant from the lakes. Dimensions of the Robert Wilmot are: Length over all, 145.8 feet; length between perpendiculars, 132.4 feet; beam moulded, 28 feet; depth of hold, 16.6 feet. This tug is undoubtedly the most complete craft of her kind ever built on the lakes. The hull is divided into water-tight compartments, deck houses are of steel, and there are two smoke stacks and two spars, the latter being rigged to carry considerable sail. Engines are triple expansion, with cylinders 20, 32½ and 55 inches, and 30 inches stroke, and of about 2,000 horse power. There are two boilers, 12 feet 6 inches by 12 feet, built for 180 pounds pressure. Windlass, capstans and steerer are all to be operated by steam, and the equipment otherwise includes an electric-light plant and two 800-pound stockless anchors. This tug will be in every way suited to crossing the Atlantic if it is desired to have her do so. Fresh water tanks with 1,000 gallons capacity and a complete set of distilling and filtering apparatus is another feature of her equipment.

The revenue cutter for which the treasury department will ask for bids shortly is to be of a size that will admit of passage through the St. Lawrence to New York, where she will be stationed. She is to be 188 feet over all, 170 feet on the water line, 20 feet 6 inches beam, and 10 feet draft when fully equipped. Her engines will be of the triple expansion type and of about 1,200 indicated horse power. The appropriation for the vessel is \$275,000.

E. W. Heath of Benton Harbor will build another tug for the Chicago dredge firm of Lydon & Drews. The tug will be a duplicate of the D. T. Helm. The machinery of the tug A. G. Van Schaick will be put into the new boat, and a new boiler with plenty of steam furnished.

Connelly Bros. of Buffalo are figuring with St. Clair river ship builders for the construction of a barge to carry 1,200,000 feet of lumber.

Labor Difficulties in England.

The eight-hour day struggle in the engineering works of England is causing a great deal of anxiety among employers, especially in ship building lines, about the future of their business in competition with other countries, on account of the influence of trade unions. A remarkable instance of the lengths to which the unions are now disposed to push their claims has recently occurred at Cardiff. Some repairs being necessary to a steamer, shipwrights were engaged for the job, but the particular work to be carried out was of a kind which the boilermakers' union had been in the habit of claiming for its members exclusively. The shipwrights, however, completed the work, and the steamer got away. Shortly afterwards, another steamer, owned by the same firm, arrived at Cardiff, and had occasion to get some repairs done, necessitating the employment of boilermakers. But the union secretary refused to allow the men to go on with the repairs until the owners gave a guarantee that they would not employ other than members of the boilermakers' union in future for all kinds of work that the union claimed for its members. This undertaking was given by the ship owners' representative, and then the union secretary announced that before the work could be allowed to proceed on the steamer the owner must pay a \$50 penalty to the union for the previous "offense." After some discussion with the union secretary, the owners' overlooker got the "fine" commuted to \$25, which he paid on behalf of the owner in order to get the work proceeded with.

It is announced from Montreal that Peterson, Tate & Co. of Newcastle, England, who were to establish the new Canadian mail steamship service, about which so much has been said of late, have failed to finance the scheme.

The American Line steamer St. Louis has just made the voyage from New York to Southampton, establishing an eastbound record of 6 days, 10 hours and 14 minutes.

Paddle Engines with Joy Gear.

A set of paddle engines, noticeable from the fact that they are fitted with Joy valve gear, are illustrated on this page. They are designed for light-draught steamers, the engine frames being built up of steel plates and solid double angle frames, for the purpose of stiffening the hull. These engines were constructed by Messrs. Alley & Maclellan of the Sentinel Works, Glasgow. They are of the triple expansion jet condensing type, and have cylinders 18½ inches, 28½ inches and 45 inches in diameter respectively with 48-inch stroke, designed to indicate 600 horse power at fifty revolutions per minute, with a boiler pressure of 150 pounds per square inch. The crankshaft is built of Siemens-Martin steel, and is fitted with a patent flexible coupling. The paddle wheels are of the usual feathering type. The valve gear is of the Joy radial type, the reversing gear being arranged with steam and hydraulic cylinders worked by a handwheel from the back of the cylinders, arranged in such a manner that combined steam and hand gear, or steam gear only, or hand gear only, can be utilized for reversing purposes. All the pumps are auxiliary, the feed and bilge pumps being of the duplex type. The air pump is a drum pump driven by a tandem compound engine. The engraving is from Engineering of London.

"Under Way," not "Under Weigh."

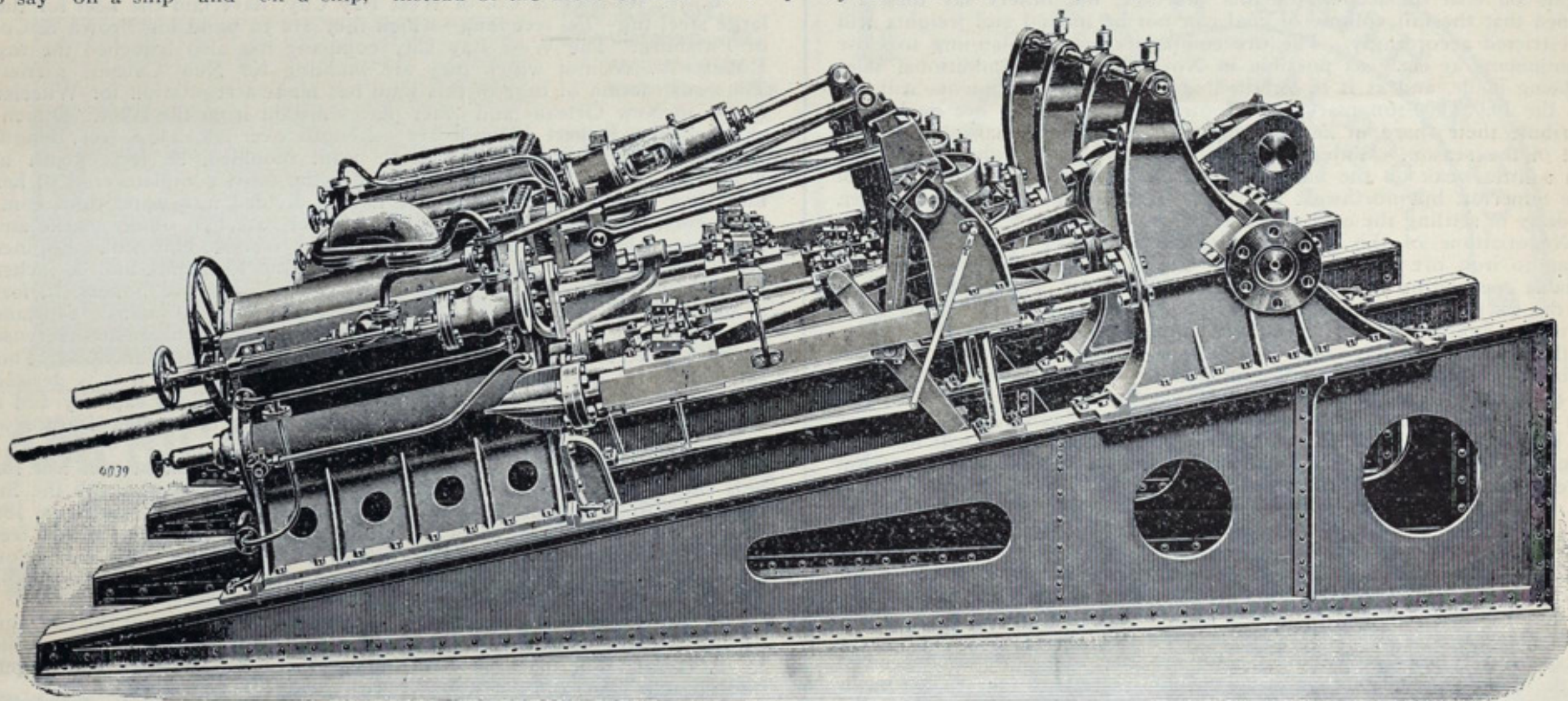
There was an interesting and not altogether uninteresting controversy in the papers the other day as to whether the well-known phrase should be spelt "under weigh" or "under way." We are reminded of this by the recurrence of this phrase in the letters of some of the correspondents during the naval maneuvers, when we noticed that, save in one instance, the spelling used was "under weigh." And yet we feel sure that this spelling is entirely incorrect, and was introduced by yachtsmen and other amateur sailors just in the same way that they have taught us to say "on a ship" and "off a ship," instead of the more correct "in a

The Other Side of the Shipping Question.

John Codman of Boston, well-known advocate of free ships, takes occasion to declare while the troublesome section 22 of the tariff bill is under discussion, that discriminating duties mean a damming up of commerce and that liberty is the watchword of success in the shipping business.

"Senator Frye offers a very lame apology," Mr. Codman says, "for the insertion of the 10 per cent. differential duty in the conference report. At the same time, he admits that it was the intention of the senate to pass a law much more sweeping and injurious in its effects. This emanated from the absurd proposition of Senator Elkins to levy an extra duty to that extent on all merchandise imported into the United States in foreign bottoms, thus reviving the law in force seventy-five years ago, which was found to be so onerous that it was repealed. The result was that almost immediately there was a marked revival in our carrying trade. There is not the shadow of an argument for its renewal in this enlightened age, when, with all other nations excepting our own, liberty in the shipping business is the watchword of success. Still, since it is a plank in the Republican platform to which the president has cordially assented, it will not be surprising if the next congress should try the experiment, despite the fact that it would be ineffectual; in the first place, because it would be at variance with our treaty obligations, and in the second, if this difficulty could be removed, it would be utterly impracticable because of the retaliation which would immediately ensue. It must be remembered that we are at a still greater disadvantage on account of our relatively small commerce than we were when it was formerly enforced. A big snowball may crush smaller obstacles, but a small one would be apt to run up against a stump before it could make any progress.

"About all the American ships in the trade between this country and Great Britain are the four American liners maintained in their business by an enormous subsidy of \$1,800,000 per annum. This new legislation



Paddle Engines with Joy Gear.

ship" or "out of a ship." Some time since we were at the trouble to search through a number of old naval works in order to discover, if possible, whether any of these, as we shall call them, new-fangled terms, were to be found in them. Our researches were without success. It is not until well into this century that we began to find writers spelling it "under weigh," and much later still that the excuse or explanation for its use was invented. The terms off and on a ship are still more modern and are said to have been brought from the United States, where in the same way they speak of "off" a street and "on" a street.—Army and Navy Gazette.

A paper on experiments in boiler bracing by Mr. Francis J. Cole, read at a recent meeting of the American Society of Mechanical Engineers, showed that the average holding power of stay bolts, when screwed through three-eighths plate and riveted over, when cold, is 16,350 pounds for the worst, and 24,000 pounds for the best, and when hot 3,470 pounds for the worst, and 4,613 pounds for the best. This indicates that the best riveted head which can be formed cold, made in the usual conical shape, has a holding power, hot and cold, very much less than the worst form of bolt and solid head, even when nicked or grooved deeply under the head, or bolt screwed through with a nut on under side of sheet. It does not appear that the solid bottom head bolts are deficient in holding power when tested in this manner, but the principal objection to their use is the liability of injury when screwed into a firebox where the holes are not tapped at right angles to the sheet and where the surface of the sheet is curved.

Home-seekers' excursions west, northwest and southwest are offered via the Nickel Plate road Sept. 21 and Oct. 5 and 19, at about one fare for the round trip. Inquire of agents. 316-Oct. 18

Army and navy charts of the lakes are kept in stock by the Marine Review, Perry-Payne building, Cleveland.

would undoubtedly provide them with full homeward cargoes at remunerative rates, to the loss, as far as their small competition would go, of British ships in the same trade. If England should quietly submit to this imposition, it is not unlikely that in process of time the dream of Mr. Elkins might be realized, especially if the new vessels to be built should have their privilege supplemented by a subsidy like that to which reference has just been made—and subsidy is one of the expedients suggested by Mr. Frye. With this differential duty of 10 per cent., and such a subsidy as that enjoyed by the 'American line' of about \$90 per ton for each craft, large or small, carrying mails, petroleum or coal, or sailing in ballast, it is certainly very possible that our merchant marine, owned and manned by government paupers, would be so 'fostered,' 'built up' and 'encouraged' that we should regain our maritime prestige in the course of time. To make a respectable showing with England we ought to have at least 5,000,000 tons afloat receiving the 10 per cent. bounty and drawing annually \$100,000,000 of subsidy from the treasury. But before considering a bill of the latter kind to be introduced by Mr. Frye, it is better to dispose of the present scheme now under consideration. Would England or any other nation allow it to go into operation? Assuredly not. The first homeward trip of a ship of the 'American line' would doubtless be a profitable one, but there is not the slightest doubt that on her return to Southampton with a cargo from New York she would be assessed to the amount she had gained by her outward venture. The only method by which this could be avoided would be for her to make her eastern passage in ballast, precisely in the way Mr. Elkins calculates that his ingenious legislation will force British vessels to come over to our ports. Any man of common sense, be he American or English, free trader or protectionist, cannot fail to see that this would be the inevitable result of trying to dam up the world's commerce in this era with the dry bulrushes of a forgotten past."

I. O. F. excursion to Conneaut, Tuesday, Sept. 21. Special train via Nickel Plate road; \$1.25 round trip; leaves 8 a. m. 319-Sept. 21

Fewer Ships but More Tons of Freight.

One item in the St. Mary's Falls canal statistics directs attention very forcibly to the increased capacity of lake vessels due to deeper channels. Up to Sept. 1, 1896, 12,925 vessels of 11,831,398 registered tons passed through the canals at Sault Ste Marie. Owing to idleness in the early part of the present season, the number of vessel passages to Sept. 1 of this year was only 10,634 and their registered tonnage 10,697,153, or a decrease of 1,134,245 tons. But notwithstanding this great decrease in the number of vessels and in their registered tonnage (which represents measurement, a fixed standard) the freight movement through the canals to Sept. 1 of this year is 126,145 tons in excess of what it was on Sept. 1 a year ago. The comparison in this regard is clearly shown in the following figures:

	Vessel passages.	Registered tons.	Freight tons, net.
To Sept. 1, 1897.....	10,634	10,697,153	10,805,004
To Sept. 1, 1896.....	12,925	11,831,398	10,678,859

Most vessel owners will probably be surprised to note a movement of 50,000 tons of soft coal to Lake Superior during the month of August, notwithstanding the coal strike. This coal was, of course, largely from the West Virginia district, which was not affected by the strike. The total soft-coal movement to Sept. 1 is 1,015,627 tons, against 1,727,071 tons on Sept. 1 a year ago. In ore shipments from Lake Superior there is an increase to Sept. 1 of about 750,000 gross tons (863,169 net) but this is partly offset by a shortage in Lake Michigan ore shipments. As the northwest wheat crop was somewhat late this season, there is a decrease of about 10,000,000 bushels in the shipments through the canals to Sept. 1.

MOVEMENT OF PRINCIPAL ITEMS OF FREIGHT TO AND FROM LAKE SUPERIOR.

ITEMS.	To Sept. 1, 1897.	To Sept. 1, 1896.	To Sept. 1, 1895.
Coal, anthracite, net tons.....	296,183	224,888	196,638
Coal, bituminous, net tons.....	1,015,627	1,727,071	1,063,476
Iron ore, net tons.....	6,689,269	5,826,100	5,484,152
Wheat, bushels.....	22,730,621	32,732,420	11,655,128
Flour, barrels.....	4,573,061	4,321,426	4,678,742

The total movement of all kinds of freight, shown below, to and from Lake Superior to Sept. 1, 1897, is 10,805,004 tons, or full one hundred thousand tons more than to Sept. 1, 1896, and nearly two million tons greater than on the same date in 1895.

REPORT OF FREIGHT AND PASSENGER TRAFFIC TO AND FROM LAKE SUPERIOR, FROM OPENING OF NAVIGATION TO SEPT. 1 OF EACH YEAR FOR THREE YEARS PAST.

EAST BOUND.				
ITEMS.	Designation.	To Sept. 1, 1897.	To Sept. 1, 1896.	To Sept. 1, 1895.
Copper	Net tons....	79,322	76,510	68,770
Grain, other than wheat	Bushels....	12,763,415	13,032,837	16,859
Building stone	Net tons....	2,894	12,833	13,820
Flour	Barrels.....	4,572,811	4,321,364	4,676,592
Iron Ore.....	Net tons....	6,689,269	5,826,100	5,484,152
Iron, pig.....	Net tons....	5,514	17,424	15,809
Lumber	M. ft. b. m.	468,537	416,023	495,332
Silver ore.....	Net tons....	5	140	100
Wheat.....	Bushels....	22,730,621	32,732,420	11,655,128
Unclassified freight	Net tons....	159,779	125,796	99,354
Passengers.....	Number....	14,748	15,672	12,248

WEST BOUND.

Coal, anthracite.....	Net tons....	296,183	224,888	196,638
Coal, bituminous.....	Net tons ..	1,015,627	1,727,071	1,063,476
Flour	Barrels	250	62	2,150
Grain	Bushels.....		1,119	31,650
Manufactured iron.....	Net tons....	70,147	55,158	45,902
Salt	Barrels	145,398	130,512	157,720
Unclassified freight.....	Net tons....	217,660	193,696	167,150
Passengers.....	Number ...	16,793	16,232	13,119

SUMMARY OF TOTAL FREIGHT MOVEMENT IN TONS.

	To Sept. 1, 1897.	To Sept. 1, 1896.	To Sept. 1, 1895.
West bound freight of all kinds, net tons	1,628,699	2,228,829	1,522,849
East bound freight of all kinds, net tons	9,176,305	8,450,130	7,335,299
	10,805,004	10,678,859	8,858,148

The total number of vessel passages to Sept. 1, 1897, was 10,634, and the registered tonnage 10,697,153.

Even the farmers of the country are asking for legislation favorable to American shipping. At the national congress of farmers just held in St. Paul a resolution favoring discriminating duties was adopted. The resolution also favored the adoption of legislation permitting of registration for vessels purchased from foreigners, if the owner gave satisfactory bond to build other vessels of equal tonnage within a reasonable time.

Civil Service Commission and the Army Engineers.

Editor Marine Review:—I notice in your issue of August 19 that you state that the army engineers now say that the civil service extension to their service will work in a most satisfactory manner. I regret to have to tell you that such is not the case. Your informant must have been endeavoring to conciliate the all-powerful civil service commission. The extension of the jurisdiction of the civil service commission to the army engineers is costing the government thousands of dollars annually, or, what is the same thing, it is causing much less in the way of results to be obtained from the appropriations that the vessel owners and others induce congress to make.

It is the popular idea that the civil service commission is protecting the army engineers from the vast horde of office seekers that we read so much about in the papers. Were this the case, the situation would not be so serious. Unfortunately, however, the meddling of the commission with the management of engineering operations is worse than the danger which the people think the commission are averting. An engineer charged with the disbursement of government money becomes personally responsible for every cent of that money and for the results obtained by its expenditure. Nothing but an act of congress can relieve him from that responsibility. Even the president himself can not.

It is impossible for the government engineer to construct with his own hands all of the extensive works of improvement with which he is charged, and it is therefore necessary that he should have assistants. In view of his personal responsibility one would think that these assistants should be men satisfactory to him in every way, and in whom he had entire confidence. The civil service commission steps in, however, and forces him to take its men and prevents him from taking his own. As a result the engineer becomes surrounded by men whom he can not trust, and whose every act he is obliged to regard with suspicion. As the engineer can not be everywhere at once to supervise their work, the interests of the government suffer and suffer seriously. The application of such a system to a railroad would cause the immediate resignation of its general manager, who would seek and obtain employment from some rival road. With the army engineers, however, there is but one government.

The army engineers are not and never have been interested in politics. Their commissions render their positions dependent solely upon good behavior. The civil service commission, however, is composed of politicians. It is inconceivable to them that there should be a class of people anywhere in the government service who are not there "for all there is in it." Having been given enormous and autocratic power, they are showing that they have this power by constant meddling with matters about which they are ignorant, and the responsibility for their acts, instead of falling upon them, falls upon the engineers alone.

When an engineer needs an assistant he must now apply for him to this commission. If he wants an engineer, he is just as likely to get a mechanical engineer, an electrical engineer, a surveyor, a railroad engineer, a mining engineer or a landscape engineer, as he is to get the kind of engineer he needs, and he is obliged to keep and pay the man they send him—and so with any position. He is likely to have forced upon him a woman or a man, a white person or a colored person, regardless of the circumstances of the case, and the conditions under which the services must be rendered. At the same time he is held responsible for all the acts of these people. Any theft or dishonest transaction on their part he must make good to the government out of his own pocket, whether he can trace the wrong doing to the real offender or not. All these things would not be the case were civil service reform really what it claims to be, and what the people believe it to be. As it is, it is merely a control of the entire patronage of the government by an irresponsible ring of politicians in Washington. Were they sincere in their much talked about "reform" they would confine their functions to protecting the army engineers from political pressure, and would cease their meddling with matters that are beyond them.

Our greatest showman, the world-renowned P. T. Barnum, once said that the American people dearly loved to be humbugged, and he might have added with equal truth "provided the humbuggery is not too expensive." The civil service commission has been reforming the government in accordance with their own interests for a number of years. Heretofore, however, they have operated in a small way, and solely upon branches of the government that did nothing but routine business, like the postal service, and many of the offices in Washington. Now, for the first time they are applying their methods to a branch of the government where there is the very smallest amount of routine, as the organization of engineering and contracting forces varies from year to year, from month to month, and even from day to day. Being utterly ignorant of the requirements of the engineer service, and being men of small caliber, they do not see that a different treatment is required, and think only of their own interests and the magnifying of their own importance. As a consequence, the people are gradually beginning to realize what the humbuggery is costing them.

All true friends of genuine civil service reform had best bring pressure to bear upon the commission to induce them to abandon their meddling policy and confine themselves to the purpose for which the public believe they were created. Otherwise the professional reformers may wake up some morning and find themselves out of a job altogether. In the words of the immortal Lincoln: "You can fool some of the people all the time, and you can fool all the people some of the time, but you can't fool all the people all the time."

I regret that I will have to conceal my identity for the present, as its disclosure would cause the all-powerful civil service commission to make a vacancy for one of their henchmen in the position that I am now filling. I will therefore subscribe myself,

An Employee of the Engineer Department.

New York City, Sept. 5, 1897.

The navy department has decided not to use electricity for the operation of turrets, steering gear, winches, etc., in the battleships now under construction. Engineer-in-Chief Melville advocates the use of steam or hydraulics.

A Briton's Delight with the Lakes.

The story that follows is from the New York Mail and Express and was undoubtedly written as an advertisement for the Northern Steamship Co. by some newspaper representative who was indebted to the management of that company for courtesies extended on their line. The Englishman who is quoted all through the article is probably a myth, but the clever manner in which the tale of a trip up the lakes is told will warrant reading of it, even by those who are fully acquainted with the operations of the steamers North West and North Land.

"I have been all over the United States and Canada in the four months since my arrival," remarked Col. Edwin T. Palmer, to an American tourist of short acquaintance, as he started home for England on the Cunard liner Umbria. "Being my first visit I naturally came prejudiced. I felt certain that I would find nothing to equal what we have at home. But, bless my bally brightness, I have lived to learn. I am going back to England with all the flapdoodle knocked out. This visit has educated me to the belief that Great Britain, as she stands today, is a hundred years behind the new world in more ways than one. The railroad system of the United States is the finest in the world, and I speak from experience, because I have traveled every spot on the globe where there is a railroad worth mentioning. The English system of railroads, I am frank and ashamed to confess, is of a very inferior standard when compared with that of this country. But it is not in your railroad system alone that you excel. I was induced by an American cousin to make a trip on what you call the great lakes. If we had those lakes on the other side, why, they would be christened oceans. Few abroad really appreciate their importance and magnitude. Why, there is little difference between sailing on them than in plowing the expansive Atlantic. On the lakes one catches a sight of land now and then, and in that respect alone do they differ from the wide western main. My trip on the lakes was rather unexpected. I had done Niagara to a turn, and had returned to my hotel in Buffalo to pack up and continue my journey westward, when an American, whose acquaintance I had made through a transaction in a ranch, suggested that instead of going to Seattle, where I was ultimately bound by all-rail, I should break the monotony of the voyage by proceeding to Duluth by water. I shook my head over the proposition, and told him that I would have all the water traveling I cared for between New York and Liverpool.

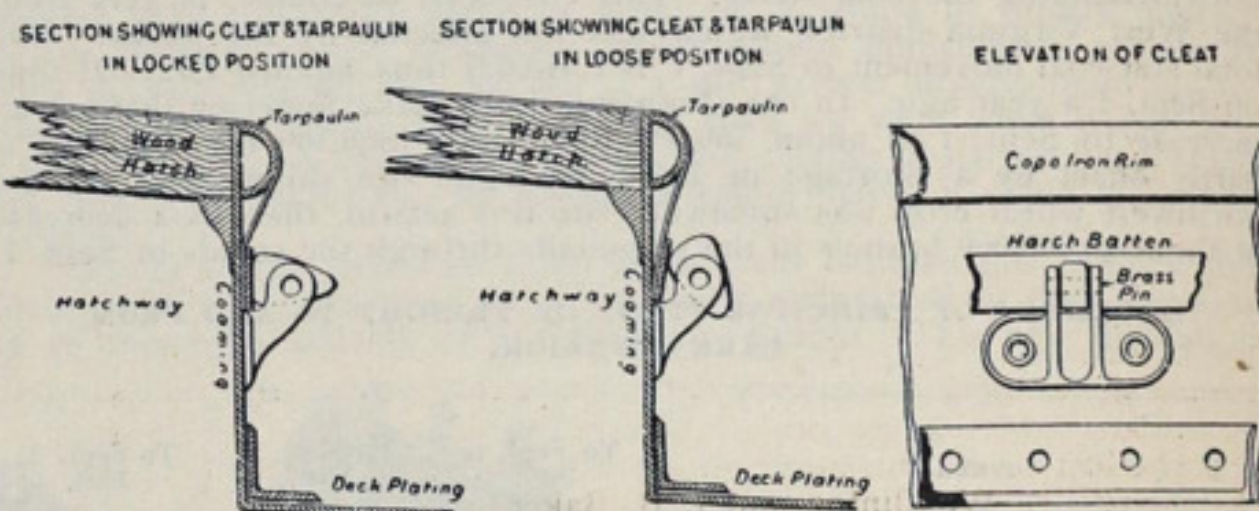
"But he insisted on my stumping it to the steamship pier to look at the craft, and it is with a feeling of thankfulness that I now say that I am overjoyed that I went. When we walked down the pier and he pointed out to me the mammoth steamer North West I could scarcely believe my eyes. You see I had little or no knowledge of the size of the lakes that he spoke of, and the colossal North West burst upon me with astonishing clearness. 'Why,' said I, 'you don't mean to tell me that you have a lake here outside of this one, Erie, on which this leviathan can safely navigate?' 'Indeed I do,' replied my friend, with a smile. 'We have more than a few. Let me straighten you out a bit. This steamer, the North West, is 386 feet long, 44 feet wide and 34 feet deep. She has a sister boat called the North Land, and both belong to the Northern Steamship Co. They run between here and Duluth, a distance by water of 1,065 miles. Roughly speaking, nearly 150 miles of the journey is through rivers that are not only extremely picturesque, but also of decidedly romantic history. One or other of the steamers leaves here at 10:15 p. m., every Tuesday and Friday. Leaving Buffalo, the craft crosses Lake Erie to Cleveland, the first stop, which is made early the following morning, and proceeding, touches at Detroit that afternoon. In this way the straits, the historic Lake St. Clair and St. Clair river are passed through by daylight. The journey thence into Lake Huron, and the next or second morning, comes the navigation of the world-renowned Straits of Mackinaw, from which one catches a glimpse of the mighty waters of Lake Michigan. Along the St. Mary's river, which for scenic attraction has no rival, the steamer proceeds, passing fully 5,000 islands on her journey to the Sault. Here are to be found the greatest locks ever built. All this is gone through with by daylight, remember. The second night and the third day are spent skimming the breezy depths of Lake Superior, and just as darkness comes on, Duluth, as bright as a mother's smile, looms up in her evening dress of sparkling lanterns. Every inch of land along the journey is redolent with the history of our country. Memories of Champlain, Marquette, La Salle, old Tippecanoe, Mad Anthony and Commodore Perry are forever foremost in the minds of those patriotic Americans who make this trip. I have done it a number of times, and on each occasion I have enjoyed day dreams of Pontiac, Tecumseh and other great red men who lived on these shores. Let us go aboard and see what a really magnificent craft the North West is.'

"I was deeply interested in all my friend had said, and lost no time in getting on board. As I walked up the gangplank I thought of our channel steamers, and they seemed like a candle to a comet as compared with this vessel. An officer of the ship took us around and showed us the accommodations for 544 first-class passengers, 214 second-class, and the quarters for 144 of a crew. He said that steam was furnished by twenty-eight non-explosive steel boilers, and that two quadruple expansion engines worked the screws, which gave a speed of 20 miles an hour. The electric dynamos on board furnish current for 1,500 lamps and a 90,000 candle power search-light. I enjoyed this part of the inspection immensely, but what really surprised me was the luxuriously equipped staterooms. I thought it a shame to call them staterooms, for really they are commodious apartments, the majority being fitted up with beds the equal of a palace hotel, and in addition not a few of the rooms had private baths attached. It was more like a floating hotel than anything I had ever seen. The smoke room I found a dream of a place, the library superior to that of the Atlantic liner on which I came over, and the social hall I discovered to be gorgeously fitted out. Well, I made the trip, as my friend predicted, and my first good impression of the ship was increased a hundred fold after I had listened to the music of the fine orchestra on board, had promenaded the spacious deck and had viewed from the recesses of a comfortable easy chair on the deck of this modern marine wonder the ever-varied panorama of picturesque headlands and winding river lengths. I wish we had lakes like Erie, Huron, Michigan and Superior in our country, and steamers like the North West and North

Land to carry us along. I came back over the same route, and at Duluth and also at Buffalo met hundreds of explorers en route to the Klondyke in search of hidden treasures. I admired these explorers' taste very much in making the journey partly by the lake, for, as I afterward ascertained, it is the most direct way to get to Seattle with the aid of the Great Northern road. Don't you agree with me that the trip through the great lakes is one of the finest that the world has given man? What! Never made it? Well, I want to give you a piece of advice. Never undertake another trip to Europe until you have seen your own country, and especially the great lakes. They eclipse anything to be found in the old world."

New Form of Hatch Cleat.

It is probable that the simple and efficient hatch cleat illustrated herewith could well be applied to cargo vessels of the lakes, on which a great deal of time is given up to covering hatches. In this device, which has been used on vessels built on the Clyde, and which is the invention of John McIntosh of Bowling, near Glasgow, the wooden wedge with



which the tarpaulin and hatch batten are ordinarily secured is replaced with a hinged fastener, which can be tightened into place or loosened with a slight blow of a hammer. The readiness with which hatch covers may be secured by this device is an advantage in its favor, and then, too, it often happens that the wedges, even when small chains are used to fasten them, are missing when they are wanted. These fasteners are permanently attached to the cleat and are always in place. The cleat is made of malleable cast iron or cast steel, and the fastener, which has a roughened face, revolves on a brass pin.

Around the Lakes.

Capt. Davis, who is in charge of the Sault river patrol service, has about completed arrangements with George L. McCurdy of Chicago, whereby the underwriters will bear part of the expense of a signal service at the Encampment, Sault river, and details of the service will be given out in a few days.

On one of her closing excursion trips the whaleback steamer Christopher Columbus carried 2,700 passengers from Chicago to Milwaukee.

Capt. John W. Callister, who was for a number of years associated with the late Capt. Kirby in the building of ships at Grand Haven, died at his home in that city, a few days ago, aged sixty-six years.

New vessels in the September supplement of the Inland Lloyd's Vessel Register are the Black Rock, a wooden steamer of 1,330 net tons, owned by the Jenks Ship Building Co. of Port Huron, and the tug America, owned by Hand & Johnson of Buffalo. The Black Rock is rated A1*, but her valuation is not given. The America is rated A1 and valued at \$24,000.

The Lake Erie Engineering Works of Buffalo submitted, on Sept. 1, the lowest bid for the construction of a 30,000-gallon pumping engine for the waterworks system of Chicago. The engine is to be of the same pattern as that built by the Lake Erie works for the Buffalo waterworks department a year ago. The bids were: Lake Erie Engineering Works, Buffalo, \$83,875; Groshon High Duty Pumping Engine Co., New York, \$92,050; Henry R. Worthington, New York, \$88,250; Holly Manufacturing Co., Lockport, N. Y., \$91,024. Three boilers are to be furnished with the engine, but the bid does not include foundations or any of the masonry.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principal points of accumulation on the lakes, Sept. 4, 1897:

	Wheat, bushels.	Corn, bushels.
Chicago	1,880,000	14,139,000
Duluth	535,000	188,000
Milwaukee	69,000	219,000
Detroit	241,000	22,000
Toledo	563,000	553,000
Buffalo	834,000*	1,087,000
	4,122,000	16,208,000

As compared with a week ago, the above figures show, at the several points named, an increase of 195,000 bushels of wheat and 1,915,000 bushels of corn. On the same date there was afloat on the lakes 1,053,000 bushels of wheat, 6,346,000 bushels of corn and 1,579,000 bushels of oats. Grain afloat on the canals aggregated 166,000 bushels of wheat, 1,565,000 bushels of corn, and 62,000 bushels of oats.

A twin-screw passenger steamer, built in England for service between Nova Scotian ports and Boston, is now crossing the Atlantic. The vessel is the Prince Edward, of 268 feet length, built by Earle's Ship Building & Engineering Co. of Hull for the Dominion Atlantic Railway Co. of Canada. On trials consisting of full speed tests on the measured mile and a 100-miles' run, the Prince Edward attained a speed of 19 knots.

Old-Time Ferry Service.

While on a trip to Detroit recently I came in contact with many old lake mariners, and found that a fruitful subject of conversation among them was the proposed bridge to span the channel and the advisability of opening a tunnel under the river bed, the latter enterprise having by far the greater number of friends. All this talk gave rise to many reminiscences of the ferry service on the Detroit river between Windsor and the City of the Straits.

It was in the year 1825 that the first boat was put on the river to ply regularly between the two cities. She was a scow-constructed craft and was named Olive Branch. She had been purchased in Cleveland by Mr. D. C. McKinstry and Capt. John Burtiss, and had formerly been propelled by horses. An advertisement published at the time cited that she would be used for the purpose of "transporting wagons, horses, cattle and passengers across the Detroit river." Her landing on the American side was at Dorr & Jones' dock, and on the Canada side at a wharf built by McKinstry & Burtiss, directly opposite. Prior to this the traffic across the river had been carried on by small boats and scows. This mode of conveyance continued until 1830, when Capt. Burtiss had a steamer constructed named the Argo, the hull being a large dug-out, or canoe, which was severed in twain fore and aft, spread apart and decked over, side wheels being added. She was built by Shadrack Jenkins, and continued to ply in the ferry service until 1834, when a rival made her appearance, named Lady of the Lake. The Argo fell into the hands of Louis Davenport in 1832, he being her sole owner, and in 1836 he brought out the high-pressure steamer United, a craft of 71 tons burden. It is said that her exhaust gave out such a peculiar sound that it could be heard for miles in clear weather. The United continued on the route until 1853, when she was enlarged and converted into a wood barge, in which trade she remained until 1879, when she was sunk by collision near St. Clair Flats, after having been in service forty-three years. During her term she had several masters, among whom may be mentioned Captains L. Davenport, W. Clinton and J. B. Baker.

The Alliance came on the route in the spring of 1842, and a few years later her name was changed to Undine. During her career she was commanded by Captains John Sloss and Tom Chilvers. The steamer Argo No. 2 followed in 1848, but soon after her advent she exploded, killing her master, Capt. Foster, and several others. After being rebuilt she was under the command of Capt. W. Clinton (father of Capt. W. R. Clinton), for several years, and later was sailed by Capt. James Forbes, until 1872, when she was taken off the route, having plied in that service twenty-four years. In 1852 Dr. Russell of Detroit had the steamer Ottawa built. She was of 300 tons burden and was first sailed by Capt. W. R. Clinton and afterward by Capt. A. H. Mills, the veteran tug man. She was sold to parties in Toledo, where she again served as a ferry steamer and spent the residue of her days on the Maumee.

The side-wheel steamer Gem, which was built for W. P. Campbell of Detroit, came out in 1856. She was only 50 tons burden and was of less size than nearly all that had preceded her on the route. After plying a short time between Gibraltar and Detroit, she was placed on ferry service between Detroit and Windsor, her skipper being Capt. J. B. Goodsell, who was succeeded by Capt. Tom Chilvers. A short time prior to this period the steamer Mohawk had been engaged and was sailed on the route by Captain Chilvers. This boat had something of a history. She was built of iron at Kingston in 1842 for the British government service as a lake revenue steamer. She was finally changed to a passenger boat and was lost on Lake Huron in 1868. The Windsor, 223 tons, was built for Dr. Russell in 1856, and was put into the ferry service under command of Capt. W. R. Clinton. In the spring of 1866 she was chartered by the Detroit and Milwaukee railroad company for the purpose of conveying passengers and freight to and from Windsor. On the morning of April 23 she took fire and thirty lives were lost. She was so badly damaged in hull and machinery as to render her unfit for further use as a ferry boat. Subsequently she was rebuilt, the machinery taken out and the hull made a tow barge. She was finally taken to Lake Michigan.

The steamer Essex was built in 1859 at Walkerville, above Windsor, by the Messrs. Jenkins and was owned by them. She plied on the ferry route for several years under command of Capt. George Jenkins. Owing to strong competition, she was laid up for a time, but later resumed her place on the route. This did not last long, however, as other boats came on which far excelled her in style and accommodations, and her owners retired her altogether. She lay submerged at Walkerville for some time and was finally purchased by parties on the river St. Clair and used as a ferry between Courtwright and St. Clair. Other boats that served on the route for transient periods were built for other purposes. The Detroit was built at Algonac for W. P. Campbell of Detroit in 1864, and was first commanded by Capt. Tom Chilvers and later by Capt. Walter E. Campbell. She was retired in 1875. In September of that year she was destroyed by fire at Sandwich; she was valued at \$7,000. The Hope was built and came on the route in 1870. She was owned by George N. Brady and Capt. W. R. Clinton, and sailed by the latter. She was later changed into a screw propeller.

Up to this time the ferry boats had been of the side-wheel class, and during severe winter weather were incapable of forcing a passage through the ice, and consequently were compelled to lay up at intervals. Early in 1872 Capt. W. R. Clinton designed and built the Victoria, which, as he expressed it, "would go through or over ice, irrespective of thickness," to be propelled by a screw wheel. When put to the test the captain's expectations were realized. As a ferry steamer she was a success and of remarkable speed. Not infrequently has she gone to the relief of the large railway steamers when ice-bound. The Victoria cost about \$25,000, is of 192 tons burden, and is now owned by the Detroit, Belle Isle and Windsor Ferry Co. In 1875 Capt. W. P. Campbell had the steamer Fortune built. She was 199 tons burden, cost \$25,000, and was constructed much after the style of the Victoria.

After the incorporation of the present ferry company, operating between Detroit and Windsor, the Excelsior, 229 tons, was constructed, followed in 1880 by the Garland, 246 tons. The Victoria, Fortune, Excelsior and Garland were built by the Detroit Dry Dock Co. and have been commanded by Captains W. E. Campbell, W. L. Horn, George

Horn and others whose names have passed out of mind. Of the older masters and owners several have gone to their rest. Capt. Thomas Chilvers, who was notably eccentric, died in Windsor in 1871, aged fifty-nine years. Capt. James Forbes, a genial and accommodating ferryman, died in 1874, aged seventy-two years. W. P. Campbell, a long time ferry owner, died in 1884, aged seventy-five years.

A. A. P.

Electricity Aboard Ship.

James W. Kellogg, well known to the ship builders of the country as manager of the marine department of the General Electric Co., estimates that since 1880, when the first electric light plant aboard ship was installed on the Oregon Railway & Navigation Co.'s steamer Columbia, about 500 ships of United States registry have been similarly equipped, and the number of incandescent lights on these vessels is approximately 100,000, costing about \$1,500,000. Marked improvement has been made each year in methods of lighting ships by electricity, all of which are described very clearly with numerous illustrations in an article which Mr. Kellogg contributes to the September number of Cassier's Magazine. Mr. Kellogg deals with electric running lights, signaling systems, search lights, telephone systems, motors for all kinds of auxiliary machinery, motors for automatic fog signals, for the operation of turrets on battle-ships, etc. He makes some reference in a brief article to all of the uses to which electricity has been applied aboard ship. He says in conclusion:

"When the substitution of electricity for other motive powers will be undertaken by ship builders, the lighting plant of a vessel will not be the foremost consideration, as has been the case until now. The electric generators will be designed to furnish current in much greater quantities, and therefore the economical operation of the plant will be a very important point. The units must be large enough to provide current at all times. It is not to be expected that the introduction of electric applications can be anything but gradual, though much has been done ashore in the use of electricity in many ways, which would insure the efficiency and reliability of similar applications aboard ship."

Obstructions to Navigation.

Capt. J. R. Gibson of the steamer America writes as follows from Ashabula to Geo. L. McCurdy, insurance agent of Chicago: "When off Amherstburg, August 31, at 2:30 a. m., between New York shoal and the lower dock, in our customary course and going under check, we hit what appeared to be a boulder and shoved it along with our starboard bow. Fortunately for us, our ship was not damaged, but the results might have been serious. We were drawing 17 feet 3 inches aft and 17 feet 1½ inch forward." The attention of the government officials in charge of Detroit river improvements has been directed to the report from Capt. Gibson.

Mr. McCurdy has also received a communication from Capt. M. H. Boyce of the steamer Omaha regarding obstructions on Lake Michigan. Capt. Boyce says: "The spars of the schooner Ellsworth are still a menace to every boat passing up and down the Straits. She lies east of Waugoshance and has been reported several times. Some day the underwriters will be called on to pay for a boat that has run foul of her, and then the wreck will be removed. Another obstruction is the hull and spars of the capsized schooner Emma Barnes, which is about 8 or 9 miles northwest of Little Sauble light, Lake Michigan, almost in the track of steamers bound up and down. She floats low in the water and may hold together a long time."

Features of the Iron Market.

Among recent signs of improvement in the iron market are an advance in foundry pig iron, which had been lagging behind most conspicuously, and a report from Chicago that an agreement is under way with southern makers of pig iron to advance prices and keep the market in good shape. Buyers of Bessemer pig are bidding up prices a little on iron to be delivered during the first quarter of next year, but manufacturers are unwilling to tie themselves up so long as there is uncertainty as to prices of coke, etc. Increased sales of steel rails and large orders for structural material are also encouraging features of the market. The Lackawanna company has sold 2,000 tons of steel rails to go to Australia, the first shipment to that country. Speculators in Wall street are said to be taking some interest in pig iron, believing that there is money in it.

German papers claim that the tonnage of the Hamburg-American Line is greater than that of any steamship company in the world. The figures they give are: Hamburg-American, 290,000; Peninsular & Oriental, 280,000; North German Lloyd, 265,000; Messageries Maritimes, 220,000.

Changes in Buoys, Etc.

The straight channel in Maumee bay (Toledo) having been dredged to a width of 300 feet from the range lights to the lake, Commander Jewell, inspector in charge, gives notice of the following changes in the buoys marking the channel: Nun buoy, red, No. 2, and spar buoys, red, Nos. 4, 6, 8, 10, 12 and 14, have been moved 50 feet northwest of their former positions; spar buoys, black, Nos. 3, 5, 7, 9, 11 and 13, have been moved 50 feet southeast of their former positions. The red spar buoys are on the northwest bank of the dredged channel and are 150 feet from the axis of the channel. The black spar buoys are on the southeast bank of the channel and 150 feet from its axis. The red nun buoy, No. 2, is 20 feet northwest of the straight line of the channel bank.

Lieut. Stafford, U. S. N., in charge of the Cleveland branch hydrographic office, gives notice that the temporary water works crib, No. 2, was sunk in Lake Erie off Cleveland on Sept. 8. It bears N. 12° 50' W. (true) from Cleveland west breakwater (east end) light-house, distant 13,100 feet, or 2½ statute miles.

Every ton of Atlantic water, when evaporated, yields 81 pounds of salt; a ton of Pacific water, 79 pounds; Arctic and Antarctic waters yield 85 pounds to the ton, and Dead Sea water 187 pounds.



DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

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The books of the United States treasury department on June 30, 1896, contained the names of 3,333 vessels, of 1,324,067.58 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1896, was 383 and their aggregate gross tonnage 711,034.28; the number of vessels of this class owned in all other parts of the country on the same date was 315 and their tonnage 685,204.55, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1896, was as follows:

	Number.	Gross Tonnage.
Steam vessels.....	1,792	924,630.51
Sailing vessels and barges.....	1,125	354,327.60
Canal boats.....	416	45,109.47
Total.....	3,333	1,324,067.58

The gross registered tonnage of the vessels built on the lakes during the past six years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30.	1891	1892	1893	1894	1895	1896	Total
	204	169	175	106	93	117	864
	111,856.45	45,968.98	99,271.24	41,984.61	36,352.70	108,782.38	444,216.36

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (From Official Reports of Canal Officers.)

	St. Mary's Falls Canals.			Suez Canal.		
	1896*	1895*	1894	1896	1895	1894
Number of vessel passages	18,615	17,956	14,491	3,409	3,434	3,352
Tonnage, net registered.....	17,219,418	16,806,781	13,110,366	8,560,284	8,448,383	8,039,175
Days of navigation.....	232	231	231	365	365	365

*1895 and 1896 figures include traffic of Canadian canal at Sault Ste. Marie.

Executive officers of the River Improvement Association of Chicago, who have been very active in securing funds for river and harbor improvements at that port, are considering the idea of holding a river improvement convention in Chicago in October. The plan is to have all marine and commercial interests in cities on the lakes which would be benefited by the proper improvement of the Chicago river get together and prepare proper representations of the work to be done and the importance of it. The reason for holding the convention in October is to have the memorial ready in time to be sent to Washington before congress meets. It is believed if the congressmen from the various districts interested were all united in the matter there would be no trouble in getting a suitable appropriation for the Chicago river in the next river and harbor bill. The scheme is all right as far as Chicago is concerned, and the river interests of that city are to be congratulated upon the shrewd manner in which they have already induced congress to authorize the expenditure of a very large sum of money on inner harbor improvements that are of a kind which at other places receive no aid from the general government. But the proposed convention, if it is held, must be confined to Chicago interests. Members of the Lake Carriers' Association outside of Chicago would have nothing to do with it, as the rules of that organization provide against interference with local measures, and then, too, the vessel owners of other lake cities have enough to do in looking after improvements in their own ports. Of course, anything that helps Chicago would be of general assistance to the vessel interests of the lakes, but a line must be drawn at some point in making recommendations to congress for river and harbor improvements if jealousies and confusion are to be avoided.

The New York Sun declares in a lengthy editorial that union with Canada is the only practical way to bring about the construction of a ship-canal from the lakes to the Atlantic seaboard that would be suited to the requirements of vessels capable of engaging in ocean traffic. In the opinion of a great many practical vessel owners on the lakes the Sun is correct, as the construction of a ship-canal by any route other than the St. Lawrence would involve an expense so great that serious consideration is never given to estimates on the subject presented by engineers. Canada's 14-foot waterway has been so long under construction that the 6,000-ton ships of the lakes transferring their cargoes at Buffalo have already discounted all chance of competition from the new St. Lawrence waterways. But if the St. Lawrence was within United States territory the situation would be different. Funds for the development of its canals, undoubtedly on a scale more important than a 14-foot waterway, would have been provided long ago, and lake ships would be passing through to the Atlantic seaboard in great numbers. The effort of the Sun in behalf of Canadian annexation is, however, another and a bigger matter. It is more of a dream than the hope of joint action with Canada in developing the St. Lawrence route.

A communication elsewhere in this issue directs attention to disadvantages of the civil service system as applied to affairs of the army engineer corps. It would seem that as yet such changes as have been made on account of protests from the engineers are trivial and of no real im-

portance. Everybody on the lakes is aware of how insignificant a part politics has ever played in the engineer service, especially in this matter of employing assistants, and as this question is a very serious one with the engineers, it would seem that the vessel interests should take such action as would induce the president or congress to cause a return to the old methods of dealing with assistants. President McKinley has a great opportunity to remedy this matter if he can be properly impressed with its importance. In parts of the country where new organizations are being formed for the prosecution of government works, and where important increases are made in the number of assistants, the disadvantage of this interference with the engineers is felt most severely; and the officers who have already had incompetent men thrust upon them say that in the course of a few years, as the old and tried and valuable assistants pass away, the service will become filled with time servers whose chief delight will be to milk the government right and left as far as they are able without legal proof being obtained against them. "It is the spoils system," they add, "in a tenfold worse form than the spoils system has ever been before."

If the steamboat inspectors of the Pacific coast are attending to their duties, it is not probable that there will be any serious accidents due to the rush of Klondike gold seekers. The stories of unseaworthy steam vessels and overcrowded vessels leaving the Puget sound district for Alaska are probably untrue, as the following instructions to the supervising inspector at San Francisco were forwarded from the headquarters of the service in Washington some time ago: "Owing to the great rush of travel from Pacific coast ports to the Klondike gold fields, causing an unusual demand for vessels, it is feared that steam vessels not originally calculated for the business may be pressed into the service, through the temptations offered by high prices for passengers and freight. You will please notify the local inspectors, in your district, to be exceedingly careful in changing the character of freight steamers to that of passenger steamers, or extending the routes of passenger steamers to engage in the Klondike trade, that such steamers, their hulls and boilers, are in all respects suitable, and that they are lawfully equipped, in every respect, for the new business authorized. You will further inform the various local boards of inspectors that the department will hold them strictly to account for any failure to observe these instructions."

Capt. P. H. Cooper, superintendent of the naval academy at Annapolis, suggests that the historic old vessel, Old Ironsides, should be restored as nearly as possible in spars, rigging and armament to her original cruising condition and then be stationed at the naval academy as an ever-present object lesson in patriotism. "Such was her fate in 1860," he says, "with the exception of guns and gear, but it can be remembered by those midshipmen who were first quartered on board in that year that they breathed an inspiration which later became a quickening impulse during the stirring days of 1861 to 1865." Capt. Cooper gives an anecdote to illustrate the sentiment which was once attached to the old ship in the hearts of the American people. "Just before the upbuilding of the navy of steel and high powered guns," he says, "it was my lot to command a small steam sloop, and in an American port, conversing with a wide-awake Yankee visitor, the subject of a threatened difficulty with Great Britain arose. To the opposition which I raised against such a war on account of the weakness of our naval force, the visitor remarked with much surprise, 'Why, where is the old Constitution?' By all means the ship should return to the naval academy to become an inspiration to young men."

Germany's new ship-canal, the Baltic, which was opened with a great display of war vessels, and with a celebration in which the nations of the earth were invited to take part, has not as yet developed a tonnage movement equal to one-seventh of the traffic at Sault Ste. Marie on lakes. Government estimates are far from being realized in the Baltic. During the first year 16,834 vessels of 1,505,983 tons register passed through the canal, and in the second year 22,081 vessels of 2,036,861 tons register. The official statisticians expected a yearly traffic of 18,000 ships of 5,500,000 tons. The anticipated number of vessels has been reached, but they are largely of a small class, and the tonnage is therefore considerably behind the estimates. It was expected that receipts of the government from vessels using the canal would be about \$800,000 a year, but they have aggregated little more than one-quarter of that amount.

An ice crushing steamer recently built for the Russian government is said to have cut her way for a distance of a mile through ice 22 inches thick. The Nadeshuy, as she is called, was built by Burmeister & Wain of Copenhagen and will be stationed at Vladivostock. Her length is 180 feet, beam 43 feet, and her displacement equals 1,500 tons when 18 feet in the water aft and 13 feet forward. With engines indicating 3,600 horse power, a speed of 14¾ knots was attained on her trials. Her frames are closely placed and of extra heavy section, the plating being ¾-inch, 7/8-inch and 1-inch steel, with considerable tumble home of both sides and ends. Water tanks fore and aft allow considerable alteration of the trim, and by this means the stem can be brought up so as to draw only 9 feet, while the stern can be put down to 22 feet.

Alaska has a coast line of 26,000 miles. It is two and one-half times as large as Texas. It is eight times as large as all of New England. It is as large as the south, excluding Texas. It is as large as all of the states east of the Mississippi and north of the Ohio, including Virginia and West Virginia. It has the highest mountain of North America. It has the only forest-covered glacier in the world.

A new rule of the Pacific Mail Steamship Co. makes it absolutely necessary for every officer to resign when an accident happens to his ship while he is in command.

Thomas R. Morgan, Sr., head of the Morgan Engineering Co. of Alliance, O., dropped dead of heart disease at his home in that town, Monday.

Ex-Secretary Herbert's Plea for More Ships.

Hon. Hilary A. Herbert, ex-secretary of the navy, who is one of the best informed authorities on naval subjects in this country, makes a strong plea in the September Forum for naval enlargement. The article is based, of course, upon the apprehension that trouble with a foreign power may occur at any time. Referring to the unanimity with which congress and the people sustained President Cleveland's Venezuela message, and the utterances of the people, the press and the United States senate on the Cuban question, Mr. Herbert says that administrations are more conservative than congress, but who is there to affirm that presidents will always resist the demands made upon them for warlike measures?

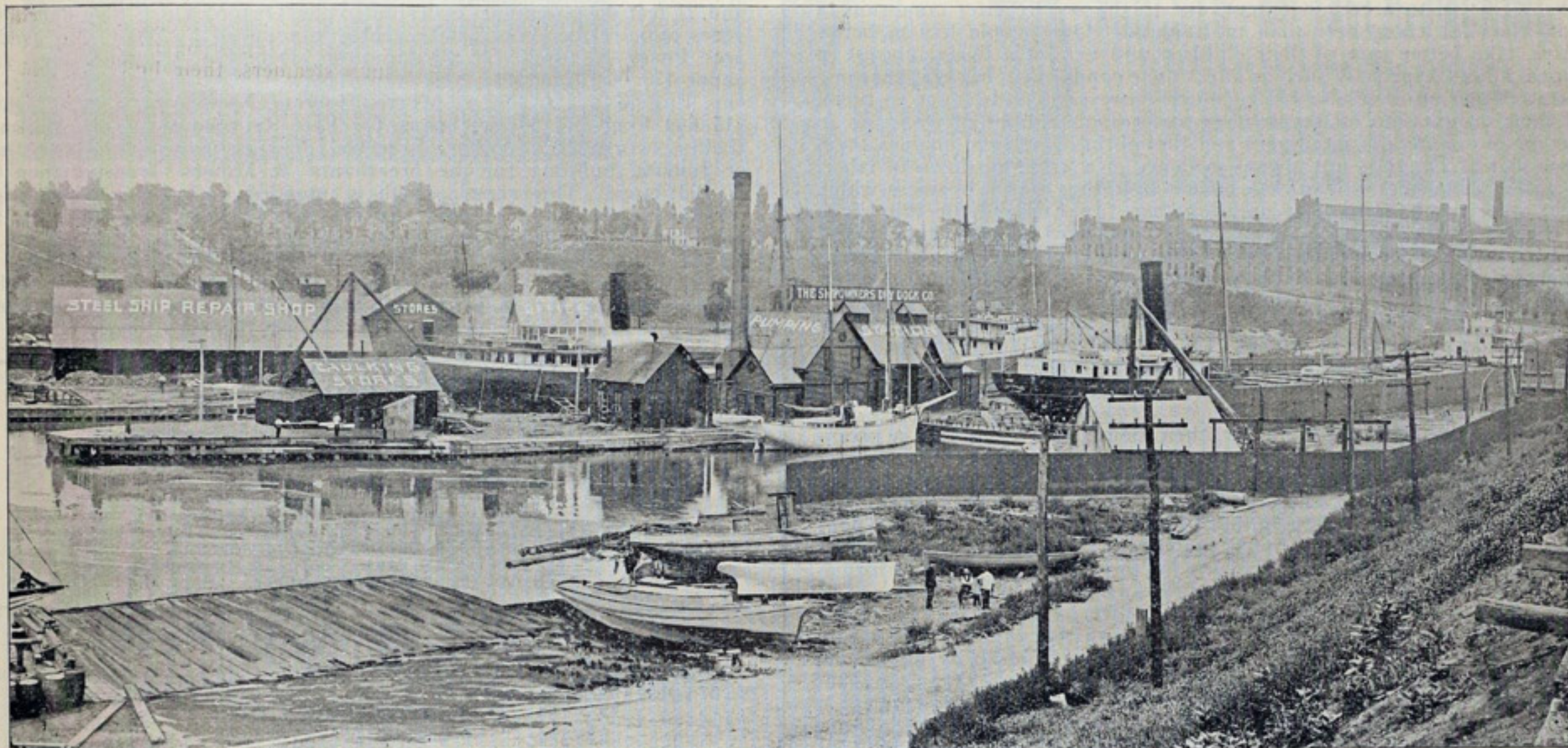
For the sake of illustrating the insufficiency of our present naval force in the event of war, the ex-secretary supposes what is possible though not probable—a conflict with Japan, arising out of conditions in Hawaii. We have now in Pacific waters one battleship, two monitors and ten cruisers and gunboats, a fleet far inferior to that which Japan could easily concentrate, without reference to the two fast new battleships which she has recently bought or the two new cruisers now building for her at Elswick. We could not therefore hold our own against Japan with our present Pacific fleet; and to get any or all of the ships in our Atlantic squadron to Honolulu would necessitate a journey of nearly 16,000 miles, requiring ninety-seven days, while only seventeen days at the most would be required to concentrate the Japanese fleet in Pearl harbor. Thus Japan would have the advantage of eighty days, during which time she could capture Honolulu and tear the whole of Hawaii into shreds. Mr. Herbert's conclusion is: "If we annex Hawaii, we must add largely to our Pacific fleet. We cannot otherwise defend this outpost, 2,000 miles from our present boundaries. Regardless, however,

European Jealousy of the United States.

In the opinion of some of the best observers among those who give their attention to foreign affairs, both in administration quarters and among the older heads in the senate, the indications of growing jealousy of the United States among leading European powers have reached a stage where this nation should keep it prominently in mind, and where congress should give heed to it in its provisions for national growth and safety. Following the war has come the wonderful development of the empires beyond the Mississippi, our reconstruction and thorough reconciliation and determined and enthusiastic union against every form of foreign interference. A vast region three times the extent of Continental Europe west of Russia, filled with such populations as carried on our war, and year by year developing in powers that are impressing themselves on the world, is a very different object for foreign contemplation from the United States of a few decades ago, when so large a portion of our territory was designated on all maps as the Great American Desert. And, above all, the United States is a republic. Herein are the seeds of that European jealousy and bitterness which are plain to all observing eyes and which, unless the whole undercurrent of talk in Washington is misleading, are to shape the policy of the administration. Its ends are to be those of peace, and the means of securing it a proper readiness for war.—H. V. Boynton in New York Sun.

An Exchange of Kind Words.

In letters from England pertaining to the proceedings of the International Congress of Naval Architects and Marine Engineers, which appeared in the Review during July and August, reference was made to a testimonial that was presented to officers of the Institution of Naval



View of Dock Yard of Ship Owners' Dry Dock Co., Cleveland.

(SHOWING NEW STEEL SHIP REPAIR SHOP AND OTHER IMPROVEMENTS.)

of any question of territorial extension, it seems to me that we should add to the number of our battleships and build many more torpedo-boats. Certainly it would not be too much to add, say six more battleships to our Atlantic fleet and half as many to the Pacific. And seventy-five torpedo-boats would not be an undue addition to this class of our vessels. These, it is believed, should be built during a programme of some five years—two battleships and about fifteen torpedo boats to be laid down each year."

Plant of Ship Owners' Dry Dock Co.

A view of the dock yard of the Ship Owners' Dry Dock Co., Cleveland, is presented on this page. With the addition of a large shop containing tools for repairs to steel ships, a new building for stores and other improvements, this company now has the most extensive dry dock plant on the lakes. Everything is now in readiness at this yard to undertake repairs to steel vessels. New tools for this work include a modern furnace, punch, shears, rolls, forge, counter-sinking machine, bolt cutter and vertical drill, operated by three dynamos. All of the tools are large and of latest patterns.

Collectors of marine photographs can secure a bargain from the Marine Review on two sets of representative lake steamers. There is a dozen in each set, consisting of the following lake steamers: Republic, Commodore, Frontenac, Fred Pabst, Spokane, Gladstone, Pontiac, Edwards and Golden Age, W. R. Stafford, Majestic, Tom Adams and W. F. Sauber. These photographs are 11 by 14 inches, picture size, taken at the mouth of the Detroit river. They have sold for \$1.25 each, but in whole sets the price is now \$6, considerably less than cost.

I. O. F. excursion to Conneaut and return, \$1.25, Tuesday, Sept. 21 via Nickel Plate road. Special train leaving Cleveland 8 a. m. 320-Sept. 21

Architects by the American delegates to the congress, who were impressed with the kindness and hospitality of English and Scotch ship builders. Passed Assistant Engineer McFarland of the navy, who suggested the idea of presenting such a memento to the English society, has since received an answer from Mr. Holmes, secretary, who says:

"Lord Hopetoun, who is ill in bed, has asked me to express to you, on behalf of the Institution of Naval Architects, the great pleasure which he felt on reading the address which you were kind enough to leave here on behalf of yourself and those of your fellow-countrymen who honored us by taking part in the congress. It is, as I am sure from your kind words you all feel, a real pleasure to us in the old country to welcome to our shores our brothers from the other side of the Atlantic, and I am only giving expression to the unanimous feelings of our president and all our members when I say that your visit was a real delight to us, and that we hope it may one day be repeated. We wish you Godspeed and a pleasant journey home, and whenever you think of us be sure to remember that, though we are separated from you by a long stretch of ocean, we are of the same blood, are animated by the same ideals, and feel for you the affection of members of one family. Let me personally express my gratitude for the kind way in which you have all treated me. I shall ever remember your visit as one of the very happiest times in my life."

Receipts of grain at Chicago (including flour as grain) during the month of August aggregated 45,486,307 bushels, and the shipments footed up 33,244,719 bushels. Receipts and shipments in detail were: Receipts—256,614 barrels of flour, 4,041,155 bushels of wheat, 21,737,099 bushels of corn, 17,527,420 bushels of oats, 538,140 bushels of rye and 497,730 bushels of barley. Shipments—202,472 barrels of flour, 5,322,888 bushels of wheat, 14,297,707 bushels of corn, 12,261 bushels of oats, 196,756 bushels of rye and 256,379 bushels of barley.

The Review has excellent photographs of lake ships.

Future of American Ship Building.

That a large amount of ship building must be done in the United States, even under present conditions, to meet the demands of the coasting and river trades, is undoubted, but we must turn our attention to ship building in a broader sense and determine whether we are to enter the field as builders and owners of oversea carriers. The question as to whether we can build ships equal to those built by other nations admits of no discussion. Vessels already built speak for themselves. In the matter of the raw material we are in a better position than any other nation, and the rebuilding of our navy has developed the various contributory industries to the point that the material used in our vessels is certainly equal, if not superior to that produced elsewhere.

The demands of the coasting and lake trade built up a number of ship yards that were well managed and efficient, and which, under the stimulus of the ship building programme lately inaugurated by the general government, were able to instantly respond to the most exacting demands. The character of the American workman, too, adds greatly to the production of a ship building element in accord with the management of the industry. The capital of the laboring man is one that gives an immediate cash return, and the chances of being out of employment in case his particular trade is an established industry are far more than offset by the risks to capital invested which often loses, not only interest, but principal. The employee sells his labor for cash at current rates. The employer, owing to competition and various conditions over which he has no control, may find it necessary to reduce expenses, and while it is not possible for employee and employer to see matters in the same light, the chances of clashing are far less in the United States than in England, for example.

The men to whom the labor elements look for advice are in this country more really interested in the welfare of the laboring class and are disposed to make more effort to keep men at work than to cause them to strike. This is, to a certain extent, due to the much better condition of labor, class for class, here than in England. Our people live in better houses, take better care of their children and exhibit a lively interest in political affairs, especially such as affect their condition. For this reason a protracted period of idleness is of much more serious moment to them, and their insight into matters of cost and responsibilities of work, as an outcome of a generally intelligent and thoughtful condition, enables them to see that a change is not always evidence of a grinding down of labor, but possibly one that will work a benefit by tiding over a business which might otherwise have to close up altogether. In England the ship yards are entirely in the hands of organizations, and work upon a great vessel has been stopped for months because the men could not decide whether carpenters or joiners should do a certain class of work. Such a thing would not happen in this country. When laborers from other countries come here, they seem to imbibe very shortly the ideas and methods of those already at work and fall into their habits very quickly. So, while for a long time the wages in this country will be higher than those abroad, the productivity of a man-day will gradually increase as compared with that in England, for example.

The raw material and the labor, then, being such as to give a promising outlook for the future, it may be asked, what is lacking? The answer is, a demand for American ships for oversea traffic. The demand for ships will increase most rapidly, just as the demand for express and freight service increases, as neighboring communities become more populous and productive. The United States will produce and demand vast quantities of sea freight, but it remains for those charged with the formation of treaties and laws to say whether any of the traffic tolls are to come to us or to be earned, as now, by other nations. The American ship today it at a disadvantage as compared with that of any other nation grasping at the money paid for sea freight. It is believed by many, and hoped for by all, that the United States is destined to be a great manufacturing nation. No nation can be a great manufacturing nation unless it produces more than it actually needs for its own consumption. To compete with other nations whose trade is already established we must be able to produce a superior article at the same price, or one equal in value at a less price at the spot where it is sold. We shall eventually do this, even though we carry the products in the vessels of some other nation. But think of the constant drain from us to that other nation in the shape of traffic tolls, brokerage, banking charges, insurance and the various profits of handling! Compare two stalls in a market, one owning its delivery wagon, and one paying others to attend to the delivery!

It is said that ship-owning does not pay. The little island of Great Britain controls the finances of the world because the ownership of the express and freight wagons of the sea is hers—and all the world pays tribute. We shall produce, in years to come, a vast quantity of the world's freights and shall demand of other nations a like amount for our own needs. Under existing conditions we can not afford to own the vessels to carry even our present share of the world's cargoes. We can not progress under such conditions, and I am enough of an optimist to believe that the people of the United States will insist upon a broader policy than the one under which our foreign commerce is stifling. If other nations have planted thousands in order to reap millions in the

way of direct encouragement of ship owning, we must do the same. The means of doing this are questions of national statecraft and legislation, but to be beneficial they must rise above parties, and become simply American.

The tariff question, which has done so much to check the growth of industry, must soon settle itself. The farce which has been played so many years will end by bringing out the moral that we must have a revenue equal to our expenditures, and that the expenditures, even with rigid economy, must increase as the nation increases. The two great political parties in the United States have now got so close together on the tariff that our methods of raising revenue may be said to be settled till the time comes when we shall produce all we need of such articles as can be made or raised in this country. The money question must, likewise, settle itself in a few years, and that by the influence of the world at large, for it is with money as a medium of exchange with other nations, and not among ourselves, that we are most concerned. The question of money, be it gold or silver, is not a local issue. The great question of policy most affecting the United States is that of our oversea commerce. It will give rise to differences of opinion, but we must note that our rivals do not allow politics to play a part in the methods adopted by them, and we must note, too, that the great commercial nations jealously guard and foster their ship-owning. We must progress seaward or stand still. We shall not do the latter, and when a policy is inaugurated and persisted in that will make ship-owning as profitable to Americans as to foreigners, then will the American ship yard rise to the occasion, and ship building become our greatest industry.—Lewis Nixon in Cassier's Magazine.

Arthur Sewall & Co. of Bath, Me., are to begin immediately the construction of a new steel sailing vessel, 312 feet long, 45 feet wide and 21 feet deep, similar in design to the Dirigo, which they built a few years ago. Other contracts recently announced by coast ship builders are: Pusey & Jones Co., Wilmington, Del., two sea-going tugs, each about 175 feet long, for New York, New Haven & Hartford Railroad; Gas Engine & Power Co., Morris Heights, New York, a steam lighter, 115 feet long and 30 feet beam, for Erie Railroad Co.; The Harlan & Hollingsworth Co. of Wilmington, Del., has just launched the steel steamer Juniata, building for the Merchants' & Miners' Transportation Co. of Baltimore. This vessel, which is intended for passenger and freight service on the Atlantic coast, is 270 feet between perpendiculars, 293 feet over all, 42 feet molded beam and 34 feet depth. Engines will be of the triple expansion type, inverted, with cylinders of 24, 39 and 59 inches diameter and 48 inches stroke. The propeller is to be four bladed, 16 feet diameter and 23 feet pitch. Steam will be supplied by four Scotch boilers, each 12 feet in diameter and 13 feet 6 inches long.

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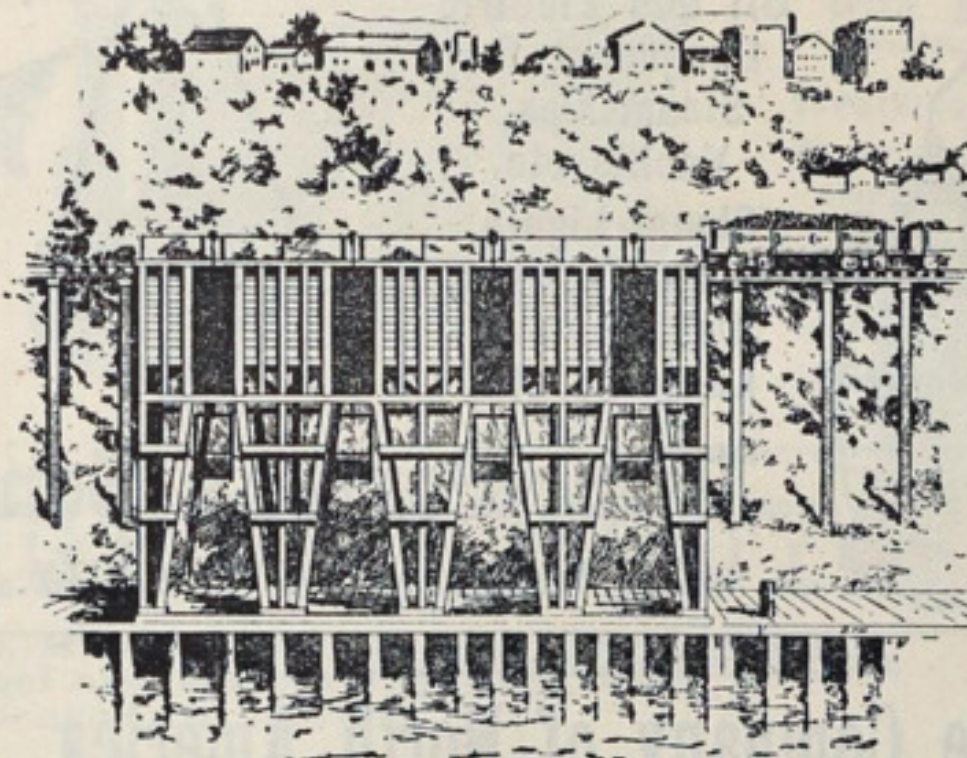
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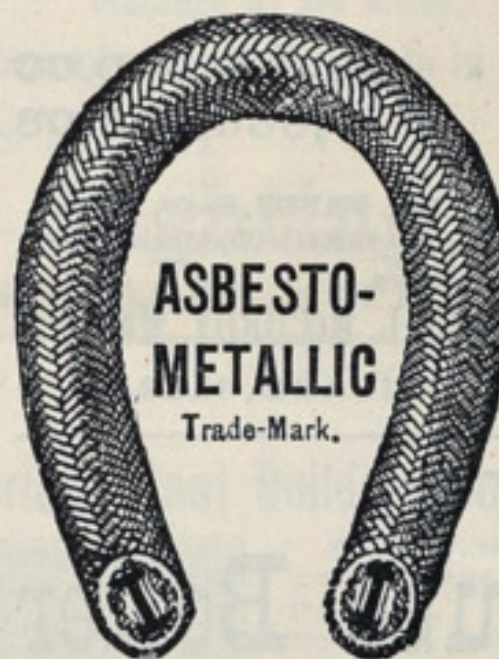
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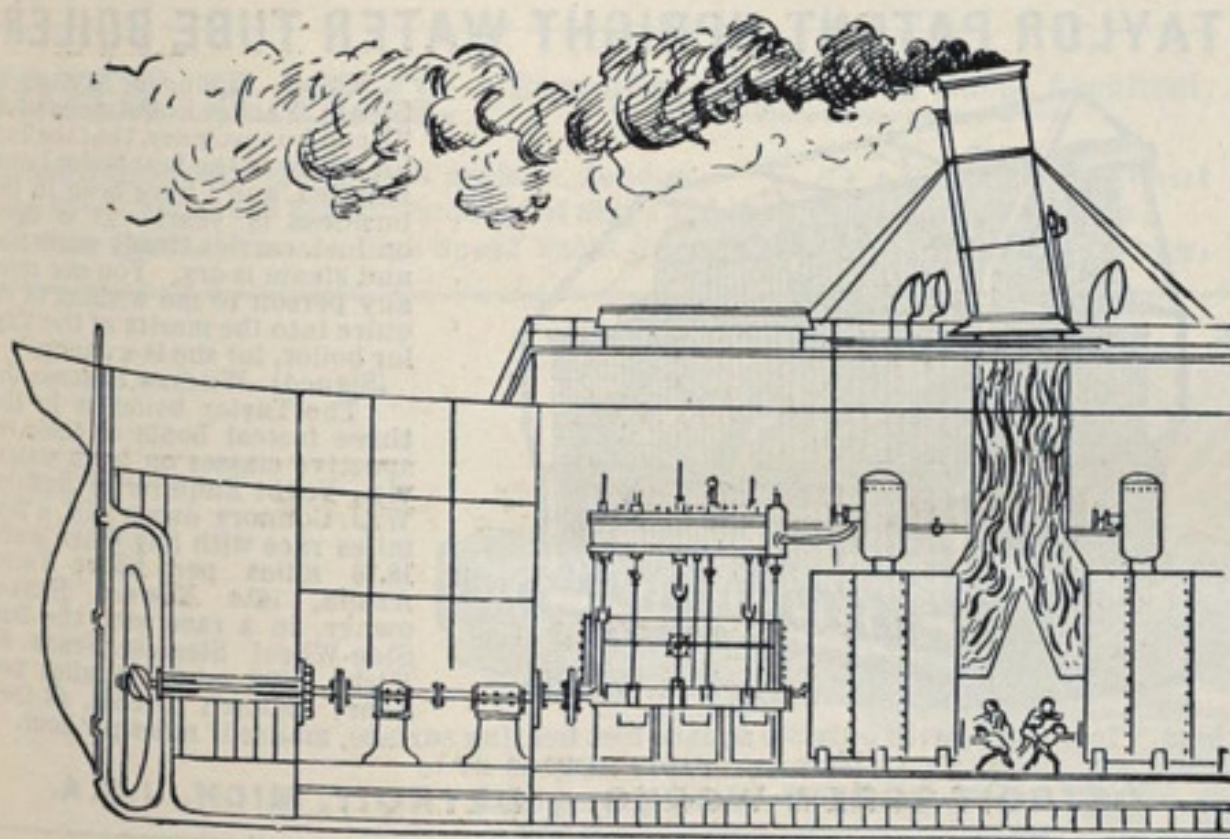
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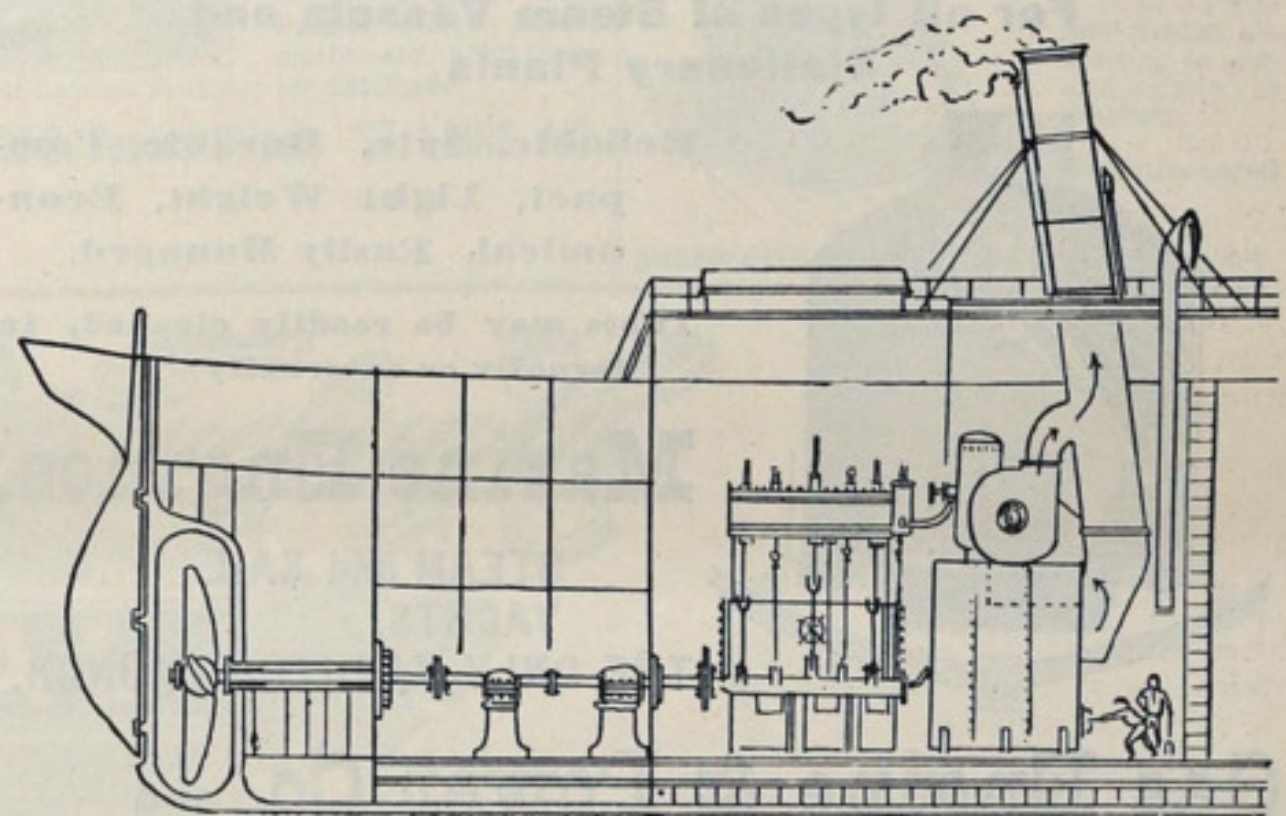
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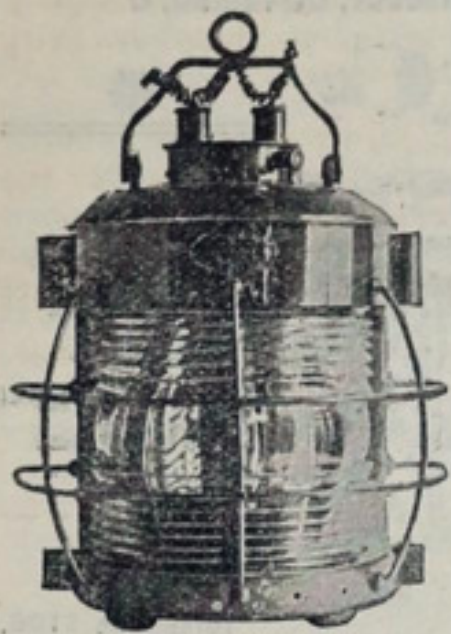
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2 Wheelmen.....	34.00 (12.46)		24	92		24	92				
2 Lookouts.....	34.00 (12.46)		24	92		24	92				
1st Engineer.....	112.50		41	25		41	25				
2d Engineer.....	80.00		29	33		29	33				
2 Greasers.....	34.00 (12.46)		24	92		24	92				
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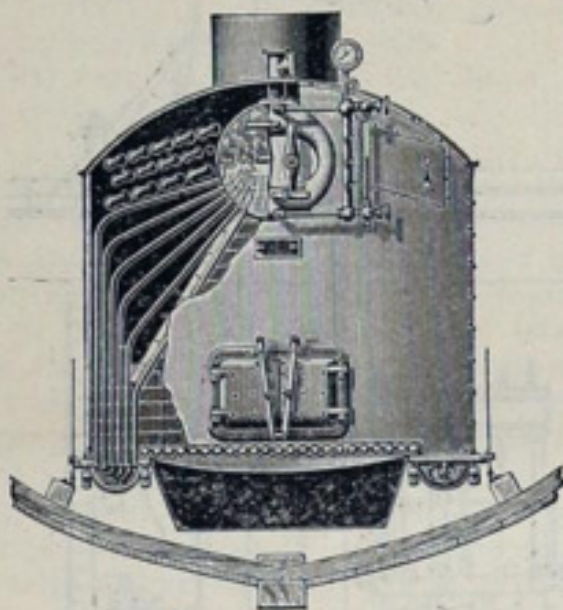
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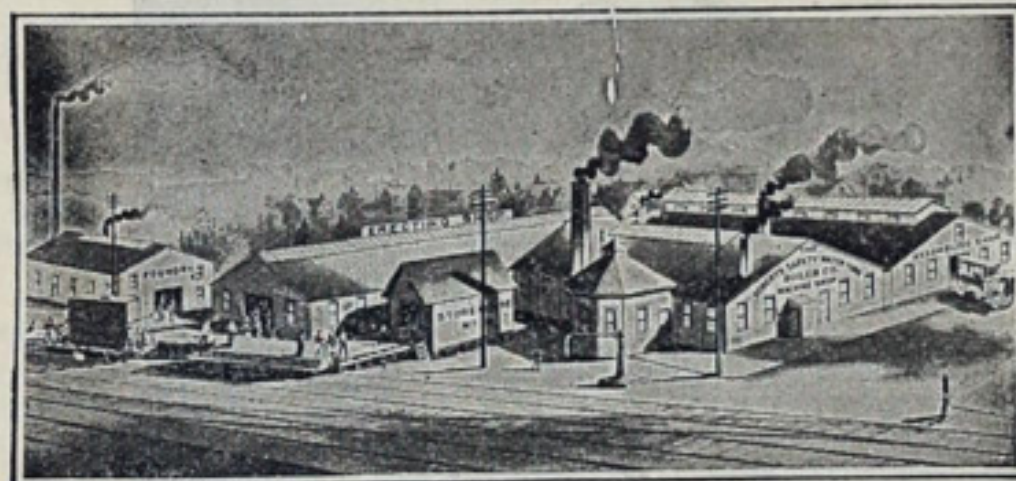
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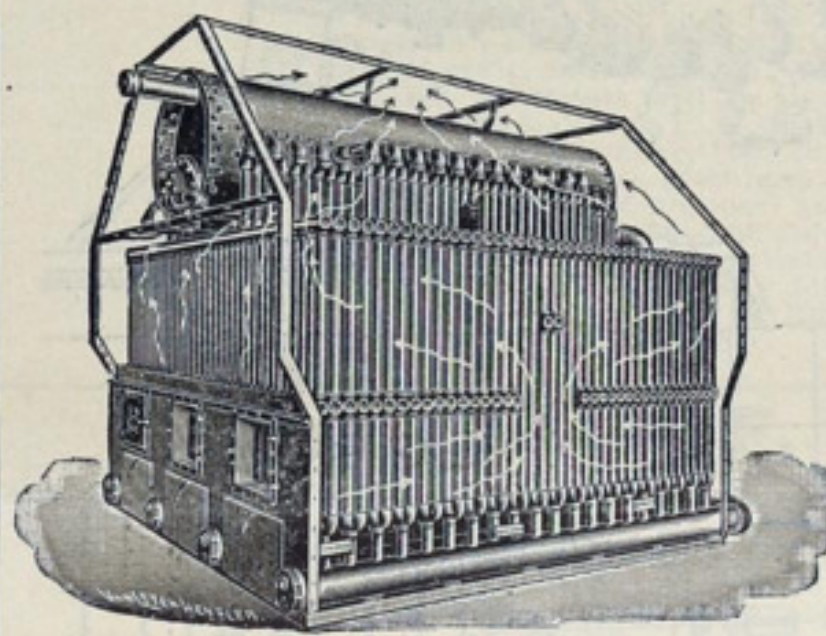
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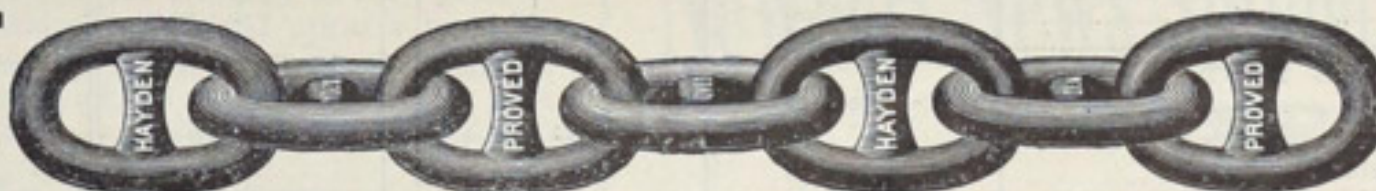
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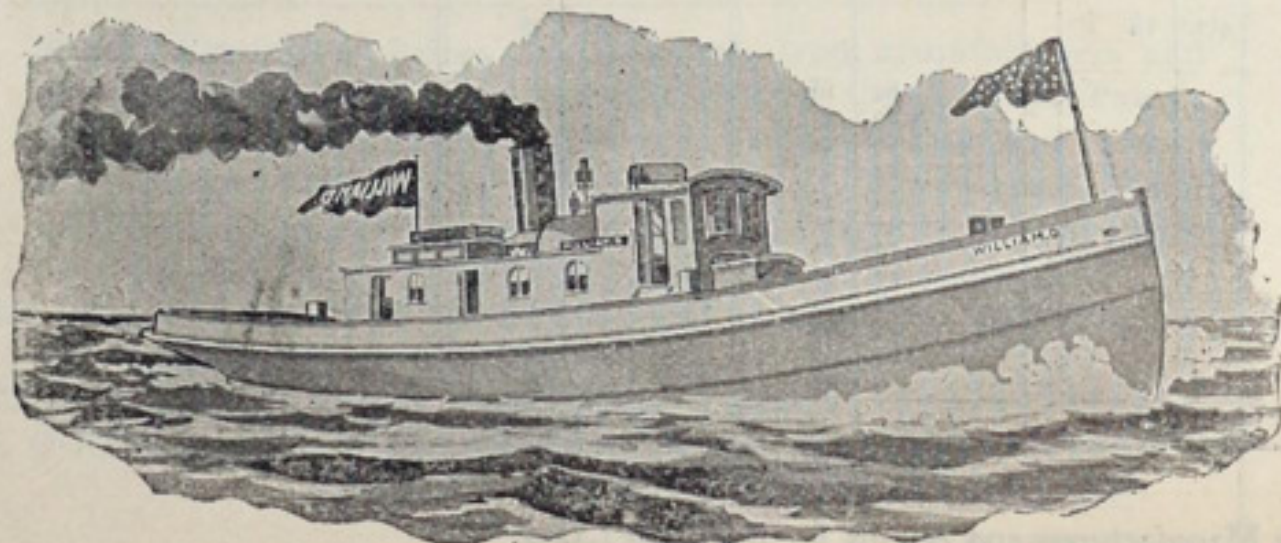
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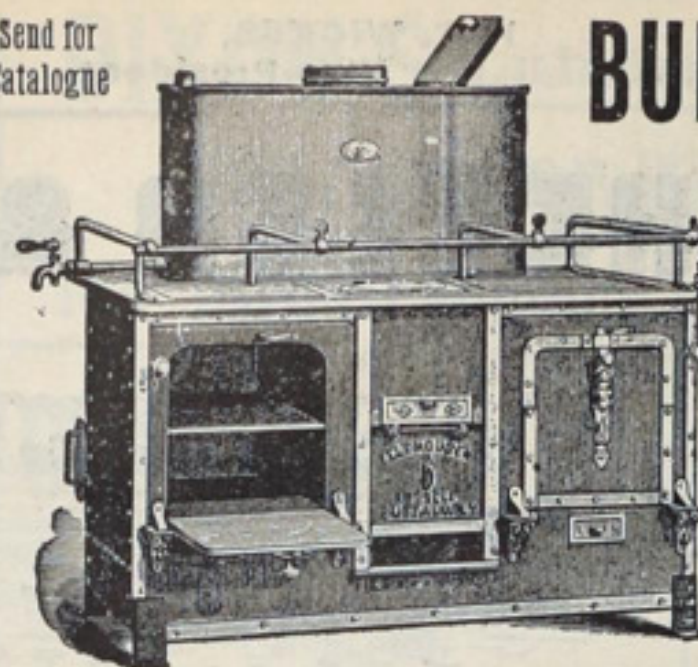
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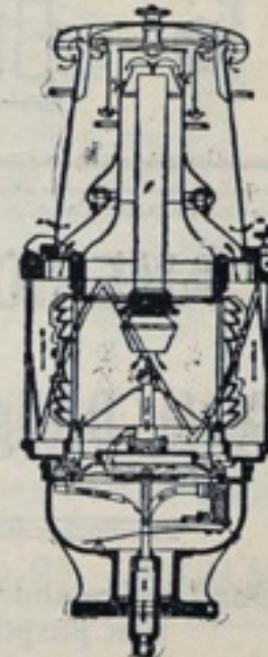
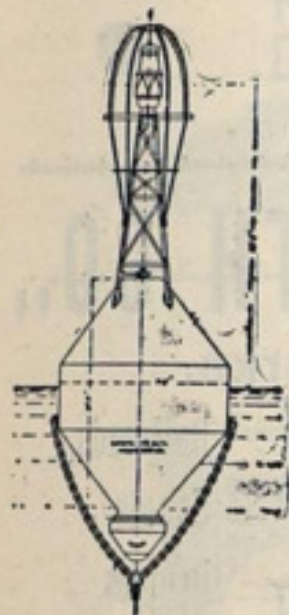
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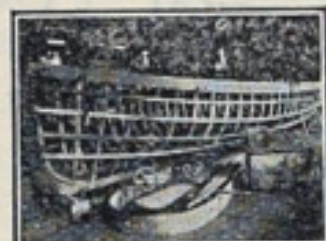
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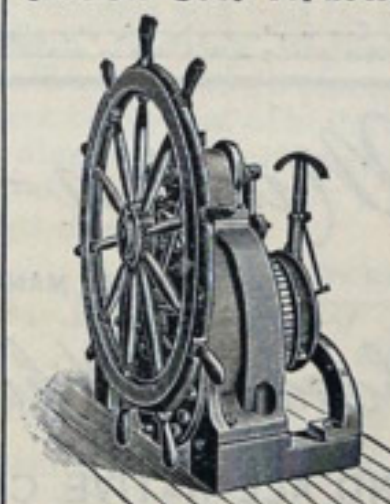
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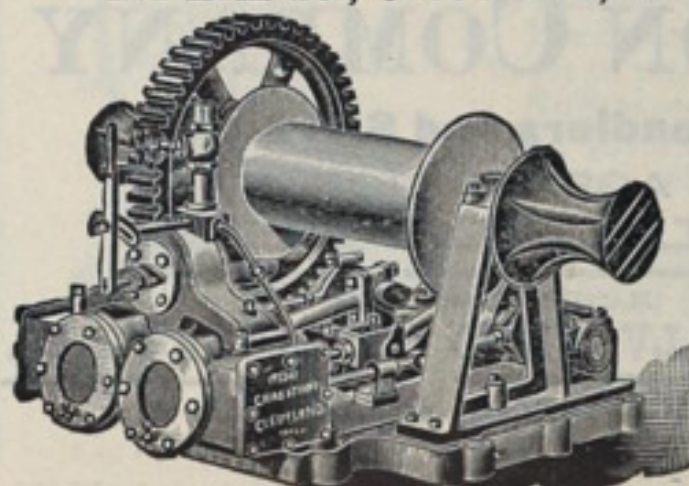
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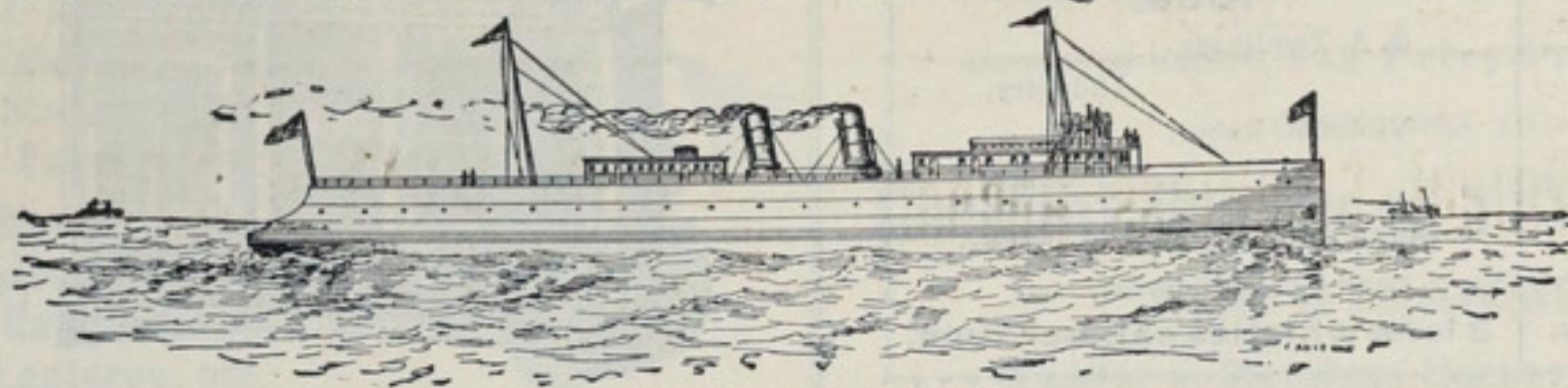
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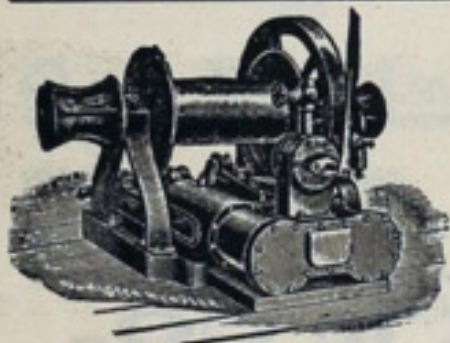
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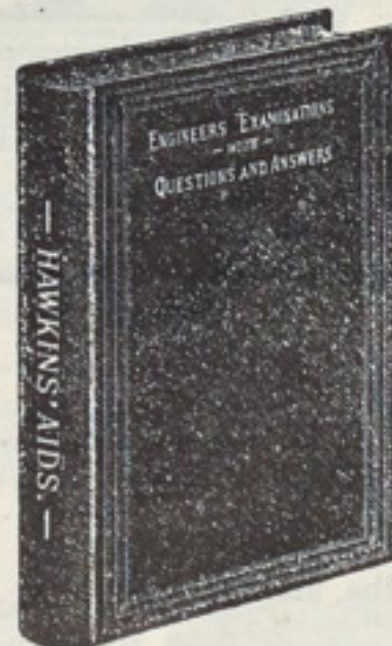
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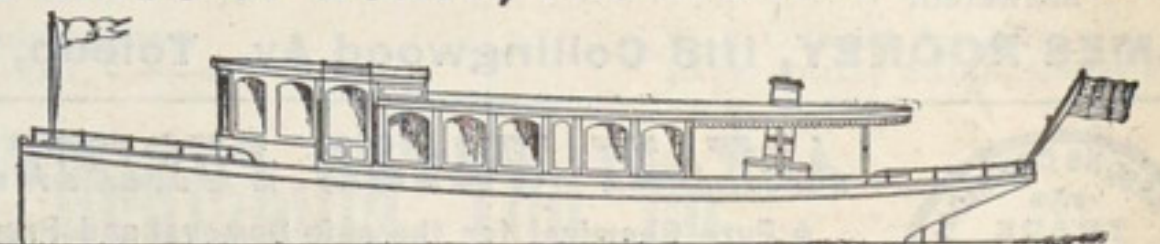
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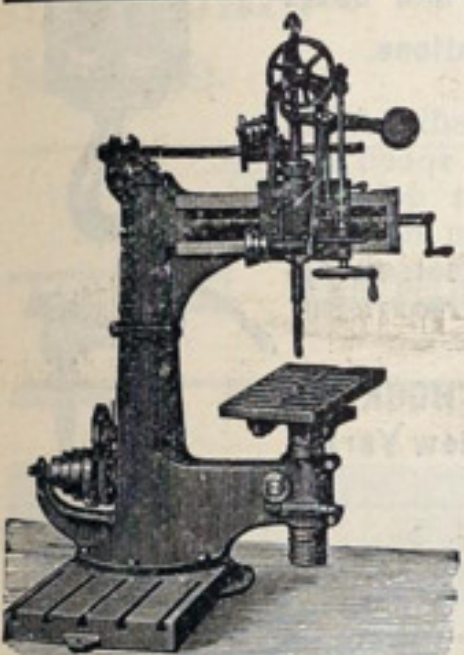
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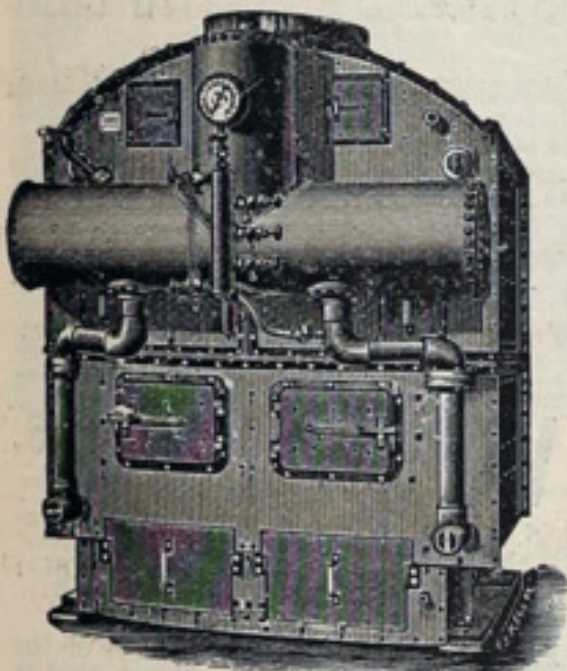
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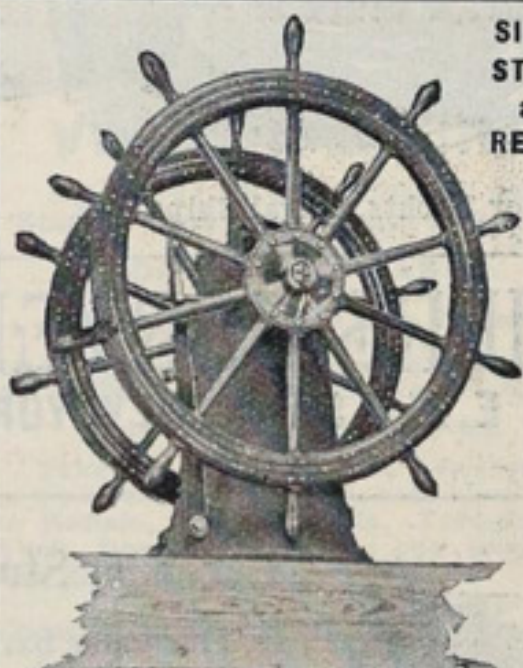
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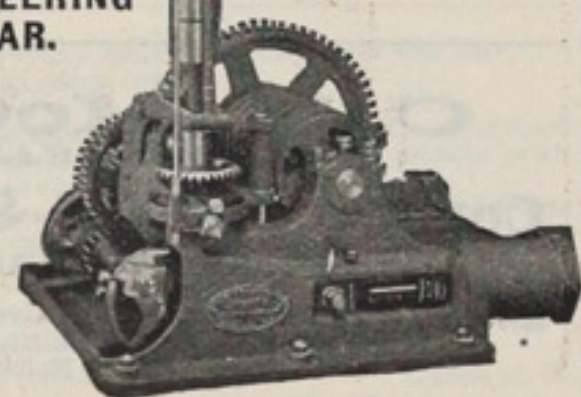


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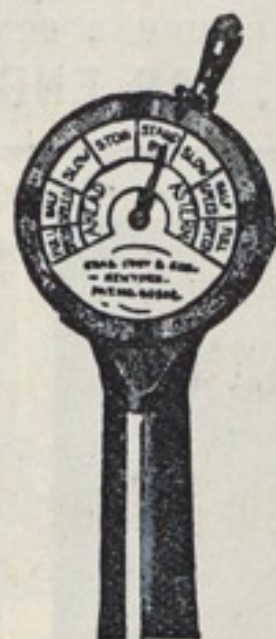
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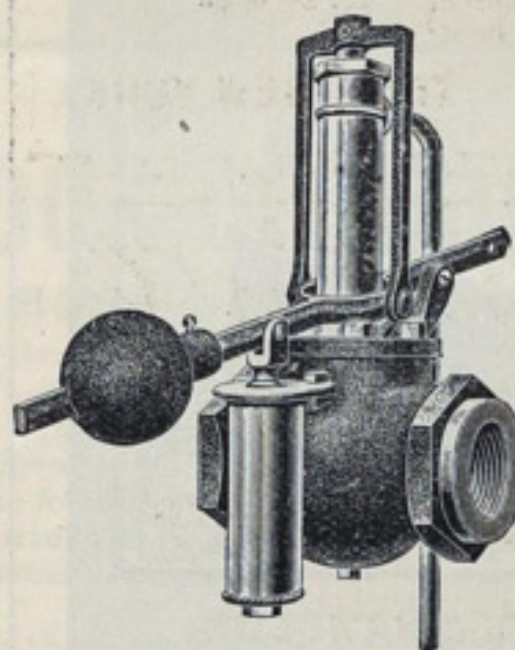


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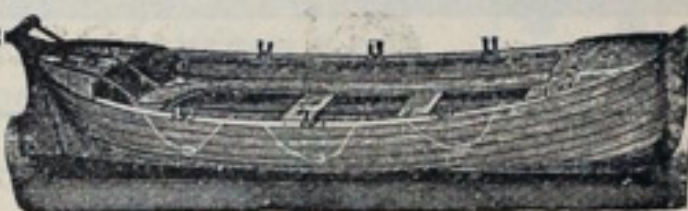
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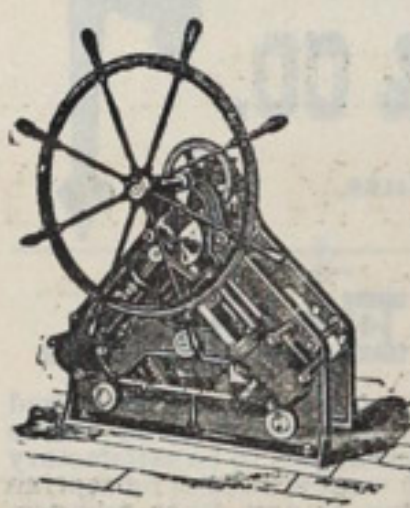
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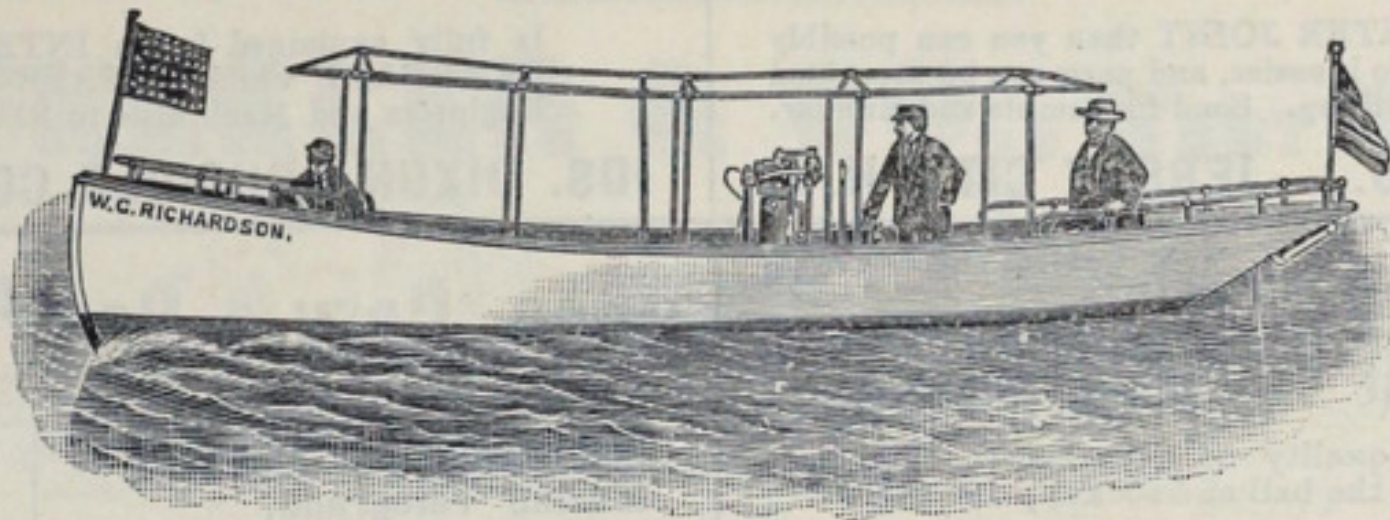
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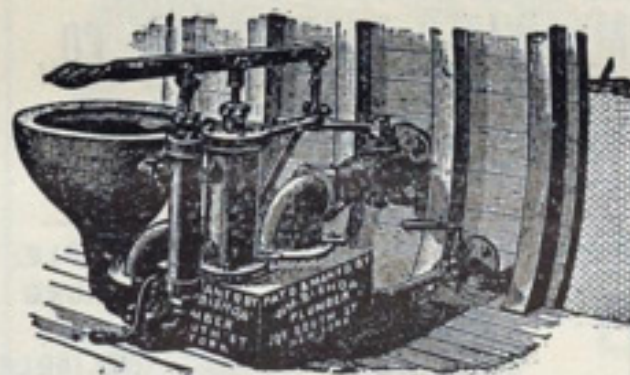
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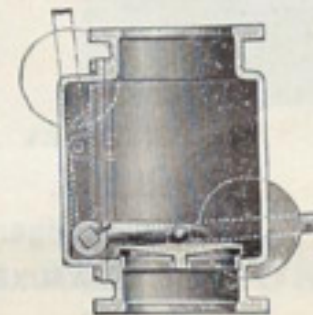
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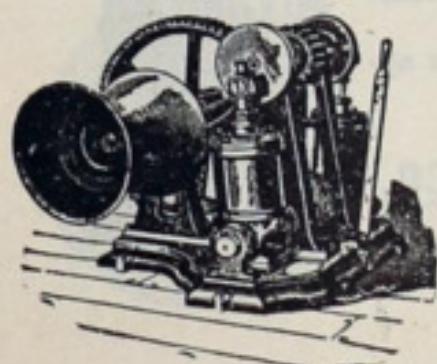
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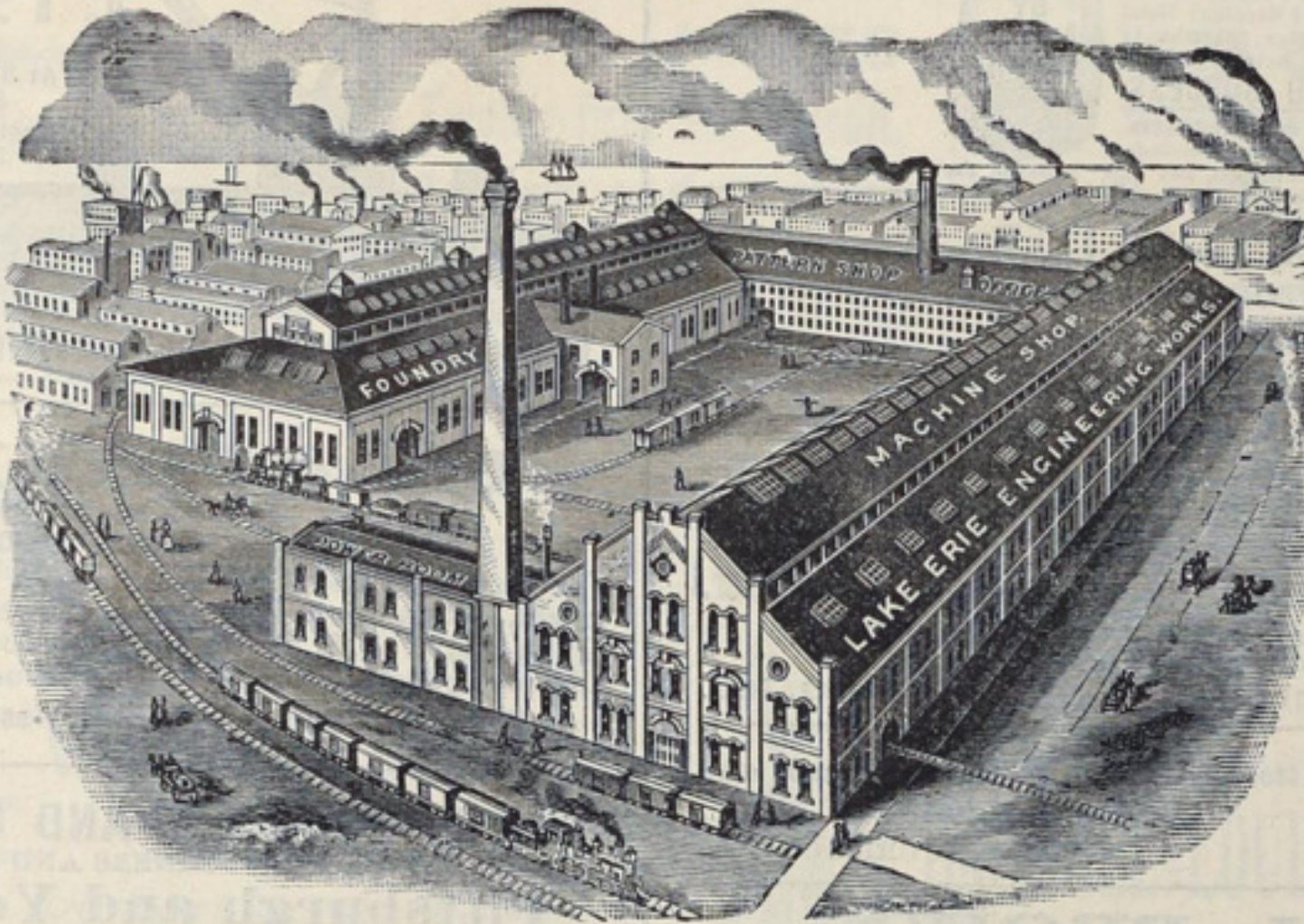
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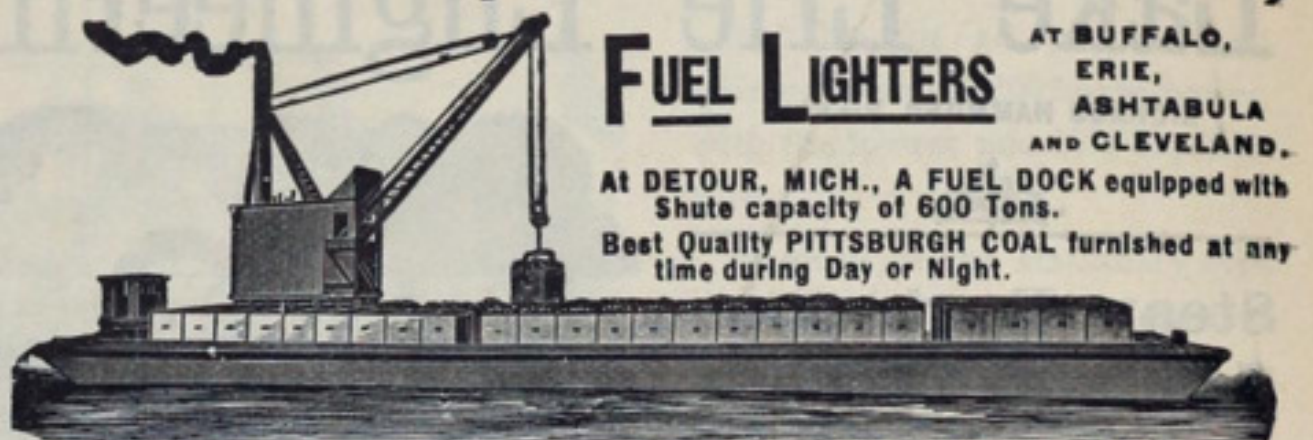
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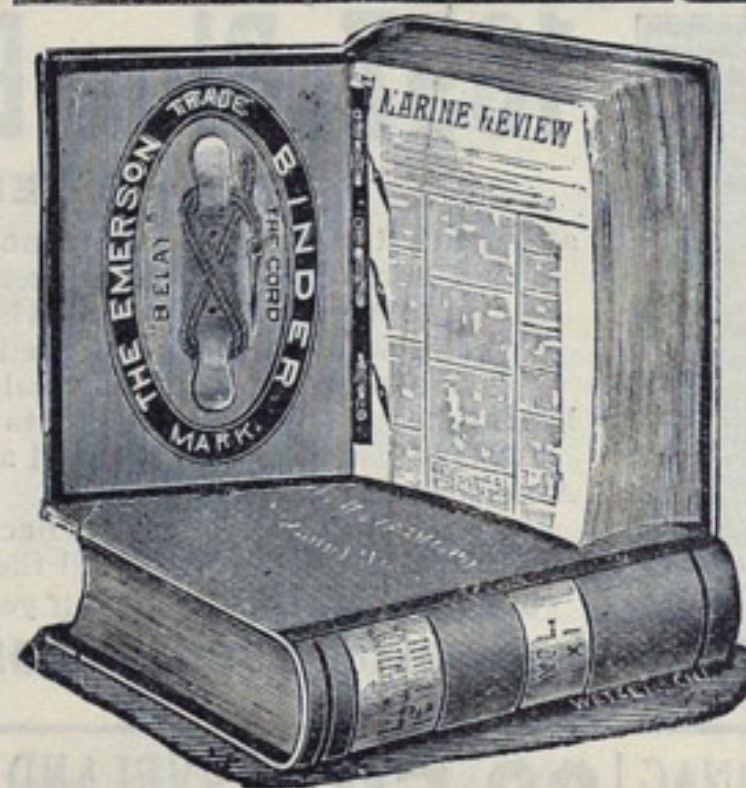
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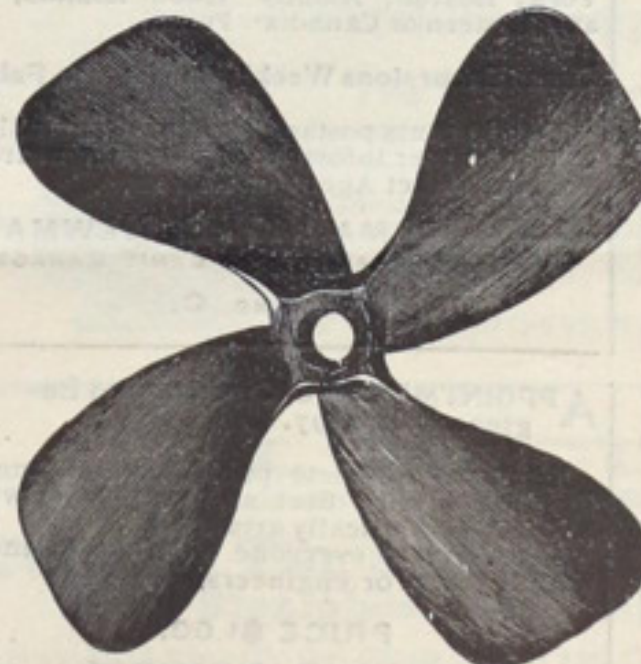
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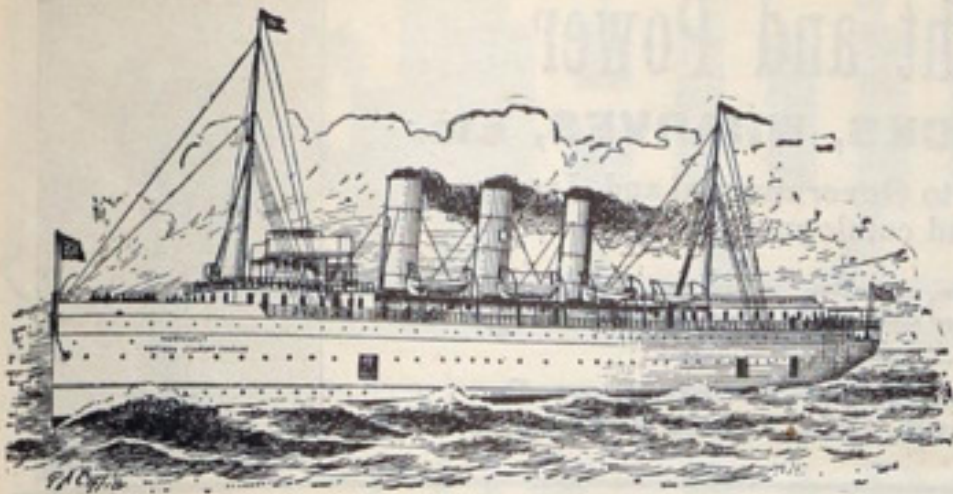
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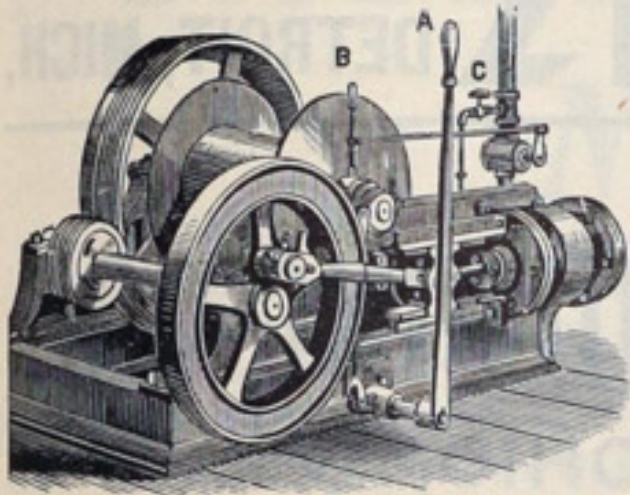
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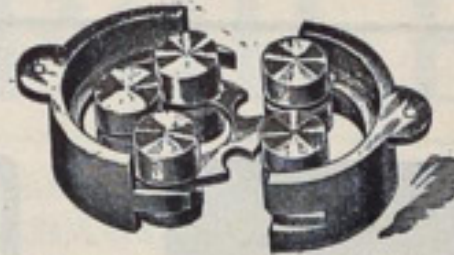
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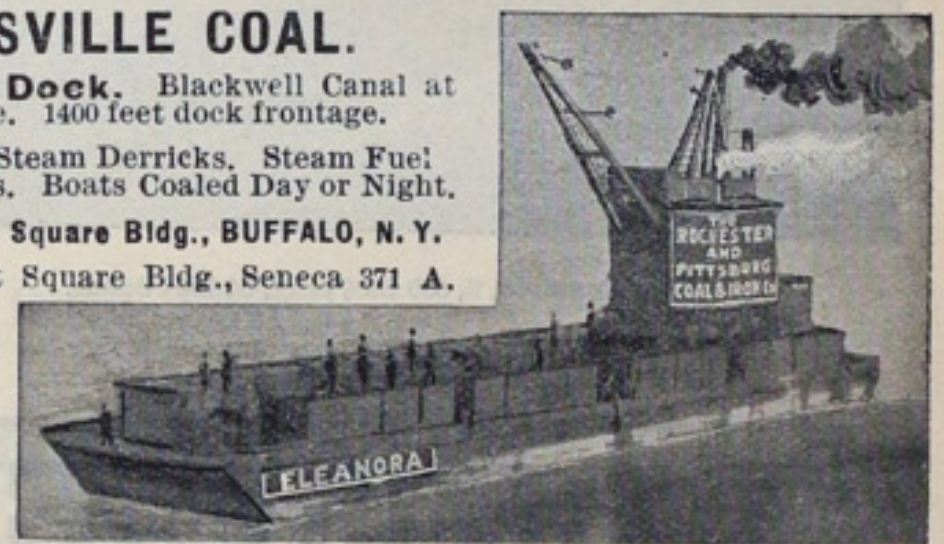
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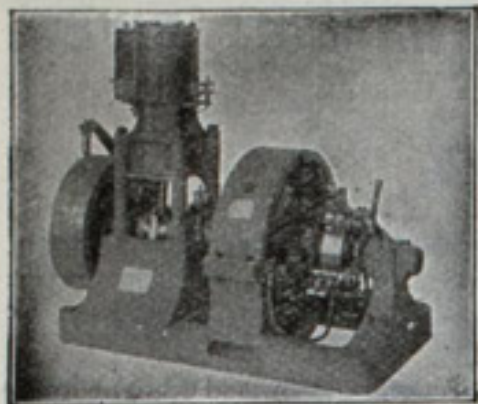
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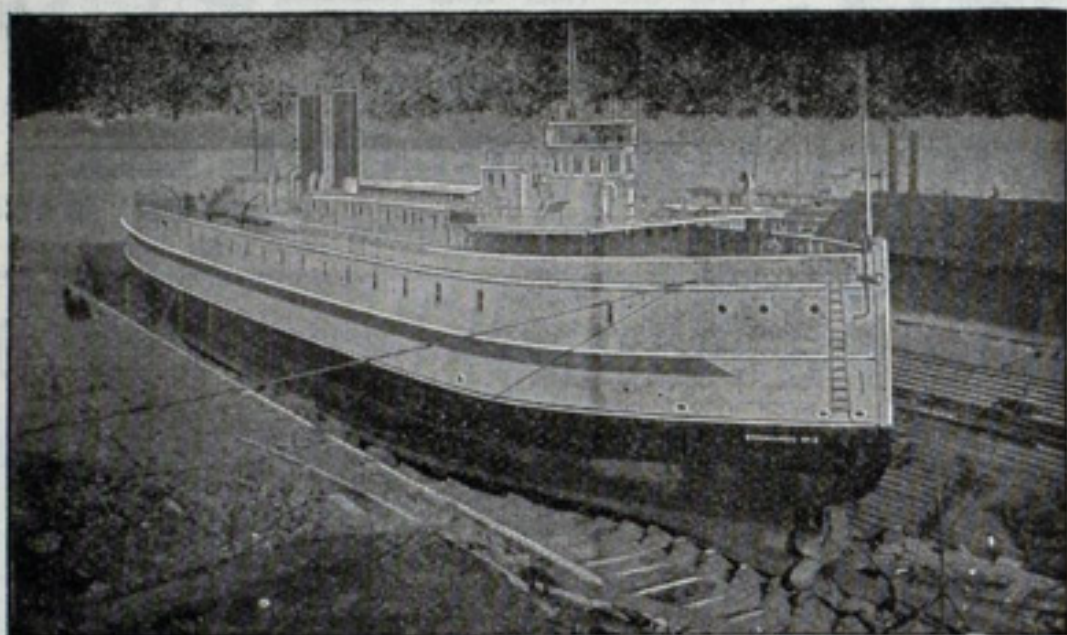
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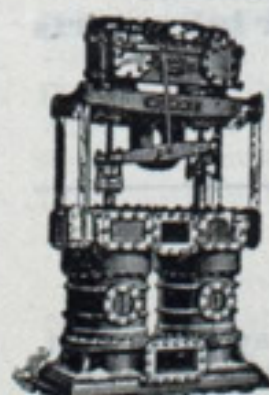
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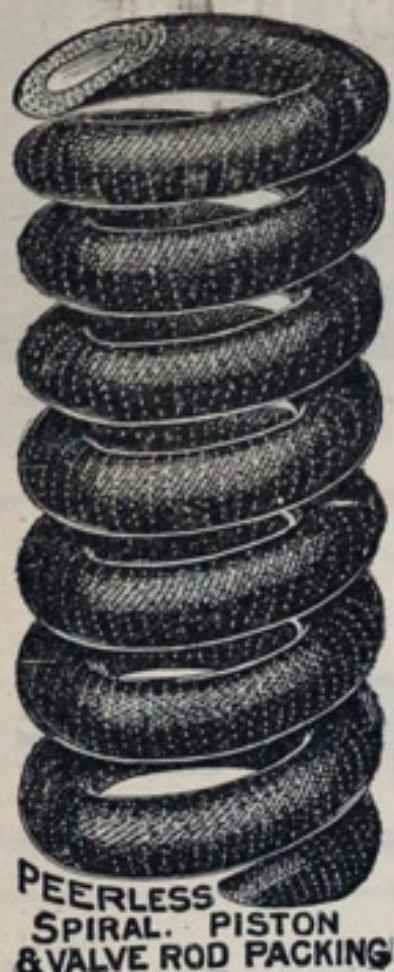
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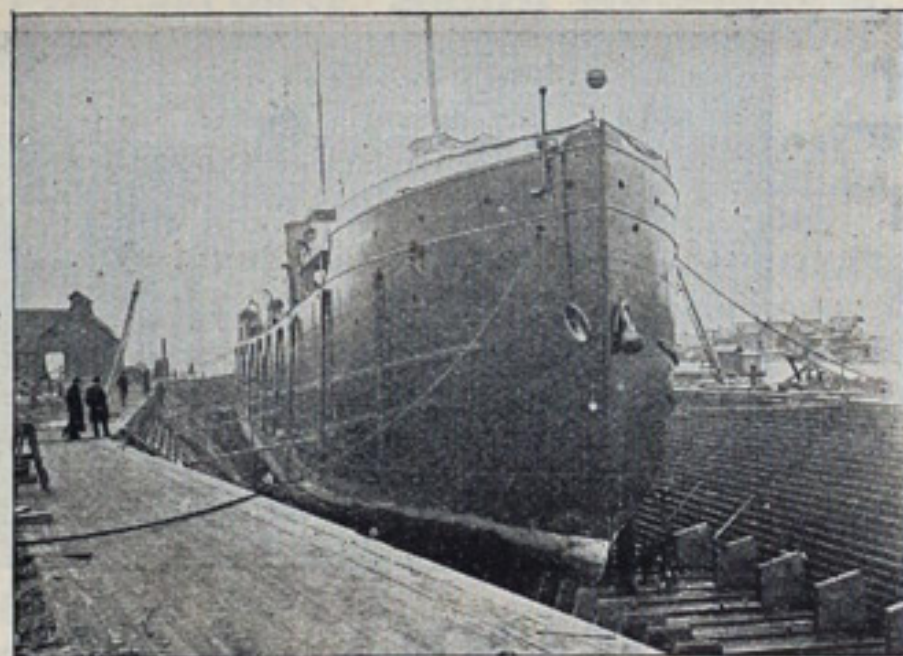
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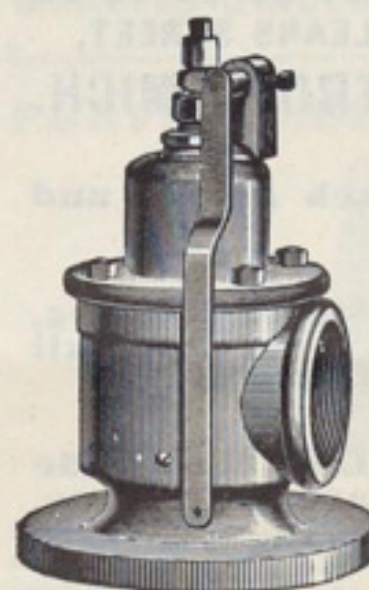
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